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THERAPEUTICAL NOTES ON CHLORODYNE.

BY JOHN DOWLING ALLMAN, CREECHURCH LANE, LONDON.

I THINK I may claim the right of having properly introduced Chlorodyne to the notice of the veterinary profession. In a series of therapeutical notes on "New Remedies," circulated amongst the profession some time since, and published by Messrs. C. J. Hewlett & Son, Veterinary Druggists, Creechurch Lane, London, I particularly drew attention to this powerful remedy, and have also requested many of my friends to note their experience in the use of this compound. To the following gentlemen I am greatly indebted for clinical notes regarding the therapeutic action of this now popular remedy, which constitutes nearly the whole or major part of their treatment in many acute and sub-acute diseases. Mr. S. Locke, M.R.C.V.S., Manchester, who has had every opportunity of giving it a trial in the large practice of my friend Mr. Tom Taylor, speaks highly of the efficacy of chlorodyne; and Mr. Faulkner, M.R.C.V.S., Manchester, Mr. J. Fraser, M.R.C.V.S., Newbury, Mr. A. H. Sautry, M.R.C.V.S., Norwich, Mr. Shipley, M.R.C.V.S., Yarmouth, Mr. H. W. Thomas, M.R.C.V.S., Plymouth; Mr. Walker, M.R.C.V.S., Bradford, Messrs. Carless & Son, M.R.C.V.S.,

Stafford, Mr. H. Olver, M.R.C.V.S., Tamworth, Mr. J. W. Hill, M.R.C.V.S., Wolverhampton,*—all these eminent practitioners have employed chlorodyne very largely in their practice, and will fully corroborate my remarks regarding the action of this important medicine.

Therapeutics.—The chief indications for the administration of chlorodyne are considered below, *seriatim*:—

1. To relieve pain. As an analgesic, chlorodyne is certainly without a rival. It can be prescribed with marked effect to allay pain arising from any cause whatever, except acute inflammation of the brain; and it is preferred to the anæsthetics, whenever the pain has any tendency to permanency. In painful spasm, such as Colic or Gripes, it is invaluable, as it seems immediately to quiet the patient, acting alike on the motor and sensory derangement.

2. To produce sleep. Sleeplessness occurring in acute disease, and not dependent upon cerebral inflammation, may very frequently be relieved by the exhibition of chlorodyne. In many forms of Low Fever, adynamic delirium often co-exists with sleeplessness, and is then best met by chlorodyne.

3. In Peritonitis. After due depletion, or in cases not requiring depletion, it should always be exhibited in large doses—℥j (one ounce)—at regular intervals, and in such a way as to keep the patient in a decided state of narcotism.

4. To check excessive secretion. For this purpose chlorodyne is very largely employed in Diarrhœa; and it is very efficacious, either alone or in combination with various remedies the practitioner may deem of service. In Enteritis and in Dysentery, although no less frequently used than in Diarrhœa, it is of service rather as an antiphlogistic and analgesic, than by checking secretion. In Diabetes Insipidus, the combination of chlorodyne and gallic acid has been found a very successful remedy.

5. To support the system. In many forms of fevers, or in the convalescence of patients after severe injuries, and in various

* *Vide* Mr. Hill's valuable paper on "Canine Distemper" (*Veterinary Journal* for October). Mr. Hill also mentions chlorodyne in his work on the "Dog," which is to be published very soon.

protracted adynamic illnesses, when to afford actual support to the system is urgently necessary, it is especially indicated. This will be most particularly noticed when, from any cause, sufficient food to maintain life cannot be taken or retained.

6. As a sudorific. In many severe colds, where there is much shivering or chilliness, and in many forms of muscular rheumatism, it can be administered with very great benefit. With its employment, there should follow the usual measures: such as warm drinks, warm coverings, and soaking the legs with warm water.

7. In chronic cough of horses affecting the trachea, when given in combination with oxymel Scillæ, it has proved an invaluable remedy.

Pharmaceutical process.—There are numerous makers of this compound. A few years since I made a series of experiments in the compounding of chlorodyne, and have decided on a formula which has given immense satisfaction. It is to be obtained only of Messrs. C. J. Hewlett & Son, already mentioned. It contains the following powerful ingredients; and being carefully prepared, it makes an excellent mixture, which does not separate. I might mention that, unless attention be paid in the compounding of it, the æther and chloroform float to the top, and the chlorodyne is then of no use.

INGREDIENTS.

Pure Chloroform	Ol. Menth. Pip. Aug.
Æther, Pure	Capsicum.
Morph. Mur.	Muc. Acaciæ.
Ext. Cannab. Ind.	Theriaca.

It will be observed that nearly all these ingredients are powerful remedies, and mixed together in the necessary proportions, form a compound which may be summarized thus:

Anti-spasmodic, Sedative, Astringent, Diaphoretic.

PUNCTURE OF THE INTESTINE IN FLATULENT COLIC.

BY T. H. MERRICK, M.R.C.V.S., NORTHAMPTON.

HAVING read, with much interest, both Mr. Harthill's and Mr. Berne's papers on puncturing the intestine in Flatulent

Colic, I determined on so operating when next a case came under my treatment necessitating it. Such a case having presented itself, I have much pleasure in describing it, and giving the results; and at the same time I desire to acknowledge my obligation to the above-named gentlemen for their papers on the operation.

On the 10th July, about noon, I was summoned to attend a cart-mare belonging to Mrs. Underwood, of Lywell, a village about six miles from Northampton. The messenger informed me that she was in great pain, and was very much "blown." On arrival, I found the mare to be suffering from an acute attack of Tympanitis—the abdomen being greatly distended with gas. The history of the case is as follows: The mare was first observed to be unwell in the morning about four o'clock, when the horse-keeper went to fetch her from the field; she was then in so much pain that it was with difficulty he got her home. Two Colic draughts were administered at intervals, after which she seemed easier; but the painful symptoms again recurring, a messenger was sent requesting my attendance. On my arrival the mare's pulse was very weak and indistinct, and numbered eighty per minute; the mucous membranes were much injected; the surface of the body and extremities cold; quickened respiration, and great uneasiness. I administered an antispasmodic draught, with Spts. Terebinth and Spts. Ammon. Arom. I also injected subcutaneously ʒi Sol. Meconate of Morphia, and applied mustard and turpentine to the abdomen, but failed in giving her any relief: indeed, she got rapidly worse, and became so distressed and helpless, that I was afraid she would fall. I therefore determined on puncturing the intestine. The right side of the abdomen being most distended, I decided to operate there, as advised by Mr. Harthill, making the puncture about equidistant from the transverse process of the lumbar vertebræ, the ileum, and last rib. On withdrawing the trocar the accumulated gas rapidly escaped, and the abdomen quickly became reduced in size; the relief afforded in a few minutes was most satisfactory, and the sigh of relief remarked by Mr. Berne in his case was especially noticed in this patient. All symptoms of pain immediately ceased, and though dull, she seemed comfortable, and in the

course of two hours the pulse became distinct, and she commenced eating a bran mash that was before her. I am informed that after I left she again showed symptoms of pain, but was soon relieved by an anodyne draught, which was left in case of a relapse.

On visiting my patient the next morning, I found her with a good pulse at forty-eight, mucous membranes very slightly injected, skin and extremities warm, the bowels acting, and the appetite good,—the patient, in fact, was convalescent, so that I had no occasion to pay her another visit.

PARASITIC DISEASE OF THE KIDNEYS OF A FILLY.

BY W. HEPBURN, M.R.C.V.S., COLDSTREAM, BERWICK.

ALTHOUGH it is tolerably certain that Parasitism in the horse, terminating fatally, is not at all so common in this country as it is amongst some others of our domestic animals, it is yet highly probable that, were we better acquainted with this class of disorders, we might assign to them a different position in the enumeration of those causes which produce serious results in this animal.

The greater number of reported fatal cases of Equine Parasitism are those associated with the existence of some of the rarer forms of nematode worms in the tissues of the intestinal canal, or are connected with the structural changes and functional disturbances consequent on the migration of some of the strongyli.

If we are not able as yet to understand the entire life-history of the nematode worms, or to account in a satisfactory manner for their presence in different situations when they occur, we can at least note the disturbance of function and changes of structure which their presence seems to entail in the different situations where they are met with. And believing that such narration of phenomena or signs of ill-health is at all times instructive to some, as well as being, in so far as it is a correct statement of well observed facts, a step in the proper direction towards under-

standing the history of those organisms, I am induced briefly to record the following case.

The patient was a two-year-old draught filly, which I was requested to examine and prescribe for in the beginning of July last.

The information received regarding the animal was, that from the period of being turned out to grass in the early part of May, she seemed to be doing badly, and was now considered to be getting worse.

Her general appearance was anything but promising: the coat was dry and staring, with a scurfy state of the skin; there was marasmus; the abdomen was tucked up; the pulse and respirations were natural, but the appetite was much impaired; and she was lame in her off hind-leg. There was no pain, or even uneasiness, although her look was expressive of exhaustion.

From examination of the limb, no sufficient cause could be found for the lameness, which I attributed to the general condition of ill-health, and which again appeared attributable to some ill-defined or occult organic disease.

Having removed the filly from the open field, and placed her in a comfortable box, she was supplied with cut grass and oats, etc. The medical treatment proper consisted in the exhibition, twice daily, of Acid Sulph. and Ferri Sulph. in good ale and gruel. This treatment was persevered in for eight or ten days, when she appeared considerably improved in every respect, with the exception of the lameness, which remained as before. At this time she was allowed to go in a grass field during the day, but was placed under cover at night.

Her condition and symptoms continued from this time until the third week without variation, when she suddenly became worse—the lameness in particular being markedly aggravated—and in a few days from this obvious increase in the general illness she died.

The *post-mortem* examination, made twenty-four hours after death, showed no alteration of structure, nor evidence of diseased action, save in the region of the kidneys. Over both these organs, and beneath their peritoneal covering, there was a considerable layer of badly organized, pale-coloured lymph. This adventitious

product in the case of the right kidney formed a very distinct and broad band of adhesion to the right lobe of the liver. Under this material were found between thirty and forty small round worms, which I believe to be specimens of the *Strongylus armatus*. Both kidneys were much increased in volume, paler in colour, and more friable in texture than natural.

TUBERCULOSIS.

BY PROFESSOR T. W. MAYER, F.R.C.V.S., ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

I HAVE read with much interest the papers that have appeared lately in the *Veterinary Journal* relative to Tuberculosis; and having had very recently a case in which this disease had attacked the synovial membranes, I have thought it may interest the profession if I record the history of it, the treatment adopted, and the result.

On the 26th of August, 1876, a well-bred pedigree cow was admitted into the hospital of the Agricultural College, Cirencester. She was brought in a cart, being so lame on the left and right knee, as well as the right stifle, that she could scarcely walk, much less stand. On inquiry, it was found that from the time of her birth, April 16th, 1870, until the 31st of December, 1875, she had enjoyed good health. She had then an abortion, but was put to the bull again on the 1st April, 1876. Very shortly afterwards she was attacked with lameness of the left stifle, which removed to the right knee, afterwards to the left knee, and from thence to the right stifle. She had been treated, both externally and internally, without obtaining any relief. On subsequent inquiry, it was ascertained that the animal herself and her mother were the progeny of the same bull.

On admission into the hospital the cow exhibited great anxiety of countenance, pulse small and rapid, very unhealthy appearance of skin, temperature moderate, excessive pain on pressure

along the back, the knees, and especially the right stifle, which was considerably enlarged; lameness was great, and the muscles of the right hind-quarter wasted; abdomen tucked up; urine scanty and high-coloured; appetite indifferent; rumination irregular; bowels constipated. On auscultation, a portion of the left lung was found in a diseased condition; the respiratory murmur indistinct; breathing variable.

The animal was placed in a roomy, well-ventilated box, with plenty of water to drink, in which was placed ℥ss of the iodide potassa, the diet consisting of a moderate quantity of good hay.

August 27. Feeds and ruminates well; lies a great deal, and evinces great pain on pressing the right stifle; considerable irritative fever; pulse 70, breathing accelerated; fæces regular, but slimy in appearance. A liniment composed of two parts of compound soap liniment and one part of tinct. opii was rubbed along the spine and into the stifle, and the medicine repeated. Some of the urine was collected for the purpose of being tested.

The following day the cow was placed in a hot air bath at 124° F., and kept in for twenty minutes, when, becoming uneasy, she was removed, well douched with tepid water, dried, and clothed.

I am indebted to A. H. Church, Esq., M.D., Professor of Chemistry at the A. C. C., for the examination of the cow's urine on this and subsequent occasions, as well as for the interest he kindly took in the operation of the medicines it was decided to adopt, not only for the relief of the animal, but for the prevention of abortion, and the proper supply of nutritious blood to the fœtus. He remarks, under date 29th August, 1876, "The total solid residue from 100 parts by measure of the urine was no less than 9·52 parts. Much sugar present."

A few days later "the solids were reduced to 7·71 per cent., and there was less sugar."

In consequence of the results obtained by this examination, the cow was treated by the administration of citrate of potass, ℥ss doses in aqueous solution, alternated with the bicarbonate of potass in similar doses, combined with ℥vij of ol. lini. twice a day, and a liniment composed—Fleming's tincture of aconite ℥j,

lin. saponis comp. ℥ij, was rubbed into the spine and joints daily.

On the 31st the animal was more tranquil; pulse 60; the swelling and pain of the joints diminished; urine more abundant. Treatment continued.

In the early part of September I considered it advisable to administer sulphate of quinine alternately with bicarbonate of potash; accordingly grs. x., gradually increased to grs. xx., was given once a day in aqueous solution. On the 14th, Professor Church reported, "That the sp. gr. of the urine was 1049. Total residue smaller than before; alkaline reaction, not more than usual phosphates and carbonates, but much sugar." And on the 22nd, when it was again tested, "Similar to last, but sp. gr. 1047, and less solids."

About this period considerable rigidity of the muscles of the diseased hind-quarter was manifested, which led to the employment of strychnine in doses of $\frac{1}{6}$th of a grain, increased to 1 gr., once a day. The quinine and potass was also continued. Subsequently the tartrate of potass was substituted for the carbonate of potass, and the quinine and strychnine regularly continued for a month. During this period the general health of the cow improved, the lameness became completely centred into the right stifle, and the enlargement of the other joints became reduced. Although the lameness was still very great, hopes began to be entertained that abortion might be prevented, and that with care gestation might be completed.

On the 3rd of October the urine was again tested, Professor Church reporting "that the sp. gr. was 1040; acid reaction, with deposit of uric acid."

The appearance of the animal was at this period more natural; pulse 60, and strong; breathing tranquil, except when moved; temperature of body equal; appetite good; urine more copious; bowels regular, but inclined to be costive. She has had several warm baths, which appear to have had a salutary effect on her health and skin. The administration of quinine with tartrate of potass was continued, but without strychnine, until the middle of October, when tincture of arnica was substituted for all other medicines, given in 2-dram doses in water twice a day. The

urine was regularly tested, Professor Church reporting the following changes:—"16th Oct. Trace of albumen; faintly acid reaction; deposited ammonio-magnesian phosphates on standing. 24th Oct. Alkaline, slight deposit of mucus, with much ammonio-magnesian phosphates. 27th Oct. Very faintly acid; trace of mucus; no precipitates of salts; nearly normal."

In the early part of November it was apparent that, as far as the animal's general health was concerned, the symptoms were more favourable; her breathing and pulse were regular, feeding and ruminating well; the pain in the limb less. The dose of the tincture of arnica was increased to ℥ij, repeated in ℥ss of water twice a day: this treatment was continued during the greater part of the month.

Professor Church now reported on the state of the urine as follows:—"8th Nov. Clear; faintly acid; slight deposit on standing of ammonio-magnesian phosphates, with trace of mucus. 23rd. Hardly different from last sample."

It was now apparent that gestation was progressing favourably, and the treatment was therefore confined to feeding the animal with oil cake mixed with crushed corn, turnips, and giving tonics, so as to support the system. The tincture of arnica was discontinued, and quinine, gentian, ginger, and infusion of quassia substituted, with occasional small doses of linseed oil. This was continued until January 8th, 1877, when the cow produced a heifer calf, apparently in a healthy condition, but which was only allowed to be suckled for a few days. For about a month after the removal of the calf, but little alteration was apparent in the cow's health; but the swelling and pain in the stifle joint became much increased, and a general wasting of the body commenced, particularly in the diseased limb. At the commencement of March the effect of hypodermic injection was tried: one dram of iodide of potass, dissolved in half an ounce of water, was injected under the skin and over the stifle joint, and was repeated at intervals. This application certainly produced relief, but as the cow was useless for breeding purposes, and suffering from pain and disease which would have eventually produced death, she was destroyed.

Post-mortem.—On removing the skin, the body was found to

be generally emaciated; the pharynx and larynx in a tolerably healthy state. The absorbent glands of the neck and external parts were enlarged, and contained tuberculous deposits. On opening the chest, the lungs were found adhering to the pleura; two of the central ribs on the left side had been fractured, but were completely united again. Both lungs contained tubercles—the right a very large one, containing a cheesy-looking substance, mixed with a dark chocolate-looking fluid; several smaller tubercles were disseminated over its surface. The heart did not show any peculiar alteration of structure. The liver contained several tubercles, filled with similar products to those in the lungs. The hepatic duct was enlarged, its coat thickened and knotted; adhering to its sides was a large quantity of black greyish looking granules; it was also softened in its structure, and rapidly became decomposed. The mesenteric glands generally exhibited great disorganization; the stomach and intestines otherwise in a tolerably healthy condition. On opening the right stifle joint (the seat of lameness), there was a large escape of serum and lymph; the synovial surfaces of the femur, patella, and tibia extensively ulcerated; there was also, in the interior of the joint, adhering to the roughened synovial surfaces, a collection of fibrin, partially organized, and an enlargement of the absorbents in its vicinity. In the centre of the flexor perforans and perforatus muscle, and communicating with the joint above, was a large semi-cartilaginous sac, containing a large proportion of fibrin, coagulated lymph, and pus. On examination of the other joints, which had been previously affected in the early stages of the disease, the synovial surfaces were found in a state of disorganization. The fibrinous deposit, a portion of the hepatic duct, and portions of the femur, tibia, and patella, are deposited in the College museum.

TUBERCULOSIS IN A BULL.

BY J. M. PARKER, M.R.C.V.S., BIRMINGHAM.

I HAVE forwarded to the Brown Institution, for inspection, a deposit removed from the mediastinum of a bull of about two

years of age. He had been ill for some months, and was first seen by me in June, when he presented no very urgent symptoms, but evinced pain on pressure of the abdominal parietes, and was constantly grinding his teeth. His appetite was fair; no tympanitis; pulse and temperature normal. No lung mischief could be discovered by the usual tests. He gradually sank, but my visits not being required after the middle of July, I cannot give a detailed history of the case. I heard from time to time that he became almost imperceptibly emaciated. There was no cough or increased respiration.

The owner at length decided upon having him destroyed, and requested me to make a *post-mortem* examination. All the organs were healthy except the lungs, which were studded with tumours of a similar character to that now sent. One was larger than the specimen, three others slightly smaller, and several more existed from this size to that of a greengage plum. Each was enveloped in a complete sac. There was no congestion of the lungs, and the air tubes were pervious. I have once seen a similar deposit in a cow's udder, but never in the lungs.

[Professor Duguid reports: "The case referred to by Mr. Parker is a very characteristic one of Tuberculosis. The specimen consisted of three separate masses of tubercle, each covered by a strong layer of condensed connective tissue, which was only slightly adherent to the deposit. They were loosely joined by areolar tissue, through which some tolerable-sized bloodvessels passed. The fresh-cut surface showed the peculiar greyish-yellow appearance of tubercle; and, in addition, many small isolated spots could be seen in the first stage of calcification. On close examination of the limiting membrane, traces of lymphatic tissue could be seen. From this I had no doubt that the deposit had taken place in the lymphatic glands, and that the capsules of the glands had become enlarged and thickened as the deposit increased."]

MALIGNANT DISEASE OF THE FEET OF CATTLE, CONSEQUENT ON FOOT-AND-MOUTH DISEASE.

BY GOFORTH WYER, M.R.C.V.S., DONINGTON, SPALDING.

I HAVE forwarded a specimen of disease of the pedal bone in horned cattle, which I think will be found interesting from a pathological point of view, and particularly so considering the number of animals thus affected on one farm at the same time, and following an attack of Contagious Eczema, from which they remained lame.

The parcel contains a fore-leg, and you will observe one side of the foot has been amputated at the inferior part of the long pastern. The pedal bone ticketed is the one I removed from the same limb about a year ago; but lately the other side gave evidence of disease by lameness and pain, and an inconvenient growth of the horny covering, as you will perceive. At the time I amputated, there appeared to be only one side of each affected. The animal, after the operation, walked very well on half a foot of each leg. I had her slaughtered to-day for the market, as I found her doing but little good. I shall be pleased to learn your opinion as to the nature of the disease. To me it resembles Scrofula of bone in the human subject.

The history of the cases is as follows:—In the autumn of 1875 Mr. Nicholson, of Gosberton Bank, had Contagious Eczema (Foot-and-mouth Disease) amongst his cattle, and, as he says, fearfully bad; although they regained their appetite and strength, they never recovered from lameness. In January, 1876, my advice was sought. I found a lot of cattle—ten in number—about a year old, and all lame: some in very low condition (those that suffered most); the others were in fair order. Some were lame in both fore-feet, one side each foot; others had only one foot and one side involved, and some both feet and both sides. The remaining cattle—viz., milch cows and heifers, about three years old—recovered from the Eczema, and went on well. On examination, I found the diseased feet very much out of their natural form; so I endeavoured, with the assistance of a farrier, to shape them properly. On cutting down upon the sole, a small quantity of dark-coloured and very offensive matter escaped,

satisfying me there was disease of bone. The feet were dressed with a solution of chloride of zinc from time to time, and other dressings of a similar nature; but all was of no avail, and in the autumn of the same year six of them (the least lame) had the feet again pared, and were sold at a fair. Two others died during the summer from inanition—not being able to stand on their feet. There then remained only two, and I determined to amputate the diseased side of each foot of one of these. The animal, after the operation, appeared greatly relieved, and did very well, walking satisfactorily for a time; but lameness again showed itself in one foot, by pain, and the hoof grew awkwardly, although the foot was regularly pared and shortened. The other animal I found suffering in both fore-feet and both sides, and I had it destroyed, as amputation could be of no use if both sides had to be removed. In some cases the hind-feet were also diseased, but it did not seem to pain the cattle so much as the fore-feet.

These cases being unusual in my practice, I made inquiries of the owner, and he said the bull (the sire of this lot of "berlings") was lame in his feet, and was so for some two years: having repeatedly to shorten the feet, believing the lameness to be caused by his always being tied up; but he never got sound, and was disposed of.

Some few years back I had a similar case, the animal being the property of Mr. W. Edwards, of Bridge End, a small cottager. He had one cow that had been lame for several weeks; one side of the foot was enlarged, and she was suffering great pain. The foot was poulticed, and afterwards blistered round the coronet; the sole was pared and the hoof shortened, and on cutting through the sole a small quantity of dark-coloured offensive matter was found—thus proving the existence of bone disease. The foot was again poulticed and dressed, but to no good. A few months after I bought her at £7, and amputated that side of the foot at the long pastern. The operation afforded immediate relief; and the following summer I fed her, and she did very well. The appearance of the hoof and pedal bone corresponded exactly with those in the above cases.

This cow had previously suffered from Eczema. In none of

the cases was there any suppurative action between the hoofs or round the coronet, neither was the coronet in any way enlarged.

[The cases recorded by Mr. Wyer are illustrative of one of the serious complications of Foot-and-mouth Disease—a malady which some authorities have pretended to regard with indifference, but which is one of the gravest scourges an agricultural country can suffer from. We have alluded to this complication in "Veterinary Sanitary Science and Police" (vol. i., pp. 451, 456). Young animals appear to be much more liable to this form of Panaris or Onchyia, as a complication of Foot-and-mouth Disease, than adults, and its effects are more disastrous in them. The limb sent was *minus* a claw, amputation of the other claw having apparently been most successfully performed. The claw remaining had become deviated, in a remarkable manner, towards the middle line of the metacarpus, as if to compensate for the loss of the other phalanx, and the hoof had also lost its concavo-convex form, and become almost convex on both sides. The pedal bone of the amputated phalanx was carious at its lower margin, but there was nothing to indicate the existence of scrofula. The horn matrix of the claw attached to the limb was swollen and altered in its texture, the alteration being not unlike that of Chronic Laminitis in the horse. The bones of the limb and the other phalanges were unaltered.]

REMARKS ON THE TREATMENT OF OPEN HOCK-JOINT, ILLUSTRATED BY A CASE.

BY JAMES LAMBERT, F.R.C.V.S., 17TH LANCERS, LEEDS.

A FINE bay mare, four years old, supernumerary remount of the 17th Lancers, was kicked in Leeds barracks at the end of August last. The injury caused was a contused wound on the inside of the off hock-joint, about half an inch in diameter, and apparently superficial. There was much swelling of the joint. The treatment enjoined was mash diet, with absolute rest, as experience has taught me that it is often very dangerous to foment or apply water in any form to wounds of the hock, for fear of causing the

joint to open. On the 2nd September she received Aloes ʒv, which acted well.

In this case, however, sloughing of the part took place on the 4th September, when there was a free discharge of synovia from the wound. Attempts were made to stop it by dusting powdered alum, mixed with flour, over the orifice; and afterwards by a pad of fine tow with powdered alum and flour, and a tail bandage over all. These attempts failed, and the mare would not endure a bandage.

On the 7th September, as the discharge still continued, a strong cantharidine blister was applied all round the joint, as recommended by Professor Williams in "The Principles and Practice of Veterinary Surgery." The blister acted well, but apparently did no good.

On the 9th there was much synovial discharge; the swelling was enormous; the mare was in great pain, and was evidently very tired of standing up so long. Unfortunately, there appeared no means of suspending slings; but seeing that the case had now become desperate, they were at last successfully extemporized by means of irons placed through holes in the upper parts of the stall posts, and the patient immediately rested in them.

The same morning I went to Messrs. Harvey, Reynolds, & Co., chemists, Leeds, and got a solution of shellac of the following strength, which they happened to have made. They have very kindly given me the recipe:—

Best Shellac	2 lbs.
Methylated Spirit . . .	2 pints.

Dissolve in a bottle kept inverted every other day. This usually takes about fourteen days to entirely dissolve.

I think the strength important. I obtained the suggestion to use a shellac solution from the work of Professor Williams above-named.

The "blob" of synovia was removed, the wound wiped dry, a piece of hanging fungus snipped off, and then a very thin (it may be described as almost transparent) pad of fine tow, about an inch and a half in diameter, was applied dry over the orifice, and painted over with the shellac solution, with a camel-hair brush, three times during the afternoon. It adhered, and stopped the

discharge for a short time; but the mare, as before, was very restless, and often moved the hock, showing great pain.

Next morning the discharge of synovia was still going on abundantly—oozing and dropping from under the pad of shellac and tow. The pad was removed; and in coming away, pulled off the blistered hair and epidermis for a small space, about half an inch all round the wound, leaving a bare patch. Another pad of fine tow, made a little thicker, was taken; but this time, instead of being put on dry, it was first wetted with the shellac solution, and applied, after well drying the skin, etc., directly over the wound; and the tow was then painted over once with the solution, including also a little of the skin outside its edges. It adhered, and the discharge immediately ceased. No more shellac was afterwards used, as none was required.

In a few hours the application had formed into a hard cake, firmly fixed round the edges, and completely closing the wound. In about an hour afterwards the pain of the joint appeared much less, and from that time the mare became easy, losing the haggard countenance and drawn-up appearance of flank that she had before presented. She also began to feed well.

The cake was left untouched for nine days: the hock all this time being very much swollen. On the tenth day the cake had detached itself a little; so it was removed, and the wound was found to be completely closed.

Fomentations were from that time used to the joint. The patient was taken out of the slings on the 25th September, and two days afterwards placed in a well-bedded-down loose box. Fomentations were then discontinued, and cold water played from a pipe on the joint for half an hour daily.

Now, October 13th, the swelling has so decreased as to be but little perceptible, and it is daily becoming less; the mare can use the joint well; she is fast regaining condition, and I have little doubt that she will soon be fit to resume work.

I have gone into particulars, because veterinary surgeons find cases of open joint, and especially those of the hock, difficult to treat, and not unfrequently fatal. Attention is requested to the strength and method of applying the shellac solution. Of course, it can be made in much smaller quantity than is given in the

recipe. I think it of great importance to apply the pad to a bare or shaven place.

During my military service, I have had numerous cases of open hock-joint; this I mention, because that articulation is of all the most difficult to treat. They have always been troublesome. Some were fatal, and some were cured by applying a pad of tow with powdered alum and flour, and bandage over all. In many cases, however, the patient would not allow a bandage to remain on.

I have tried the cold water treatment in some cases, by allowing a continual and gentle flow over the joint, but unsuccessfully. I have tried blistering in some cases also, but unsuccessfully. In one case, which appeared desperate, some years ago, at the Curragh camp, at the suggestion of Mr. Hall, V.S., Royal Dragoons, I inserted a pin suture; and the case, after very much trouble and some strong blisters after the wound had closed, eventually did well, and the horse is now at work in the regiment. Mr. Hall is a great advocate for the employment of wire suture in these cases. I must confess that experience has shown me that a suture of any kind is not always practicable or successful.

In the army, cases of open joint are usually produced after severe sloughing of the parts, caused by kicks from other horses, as we have no stall divisions except bales in the troop stables. In these cases of joint kicks, with a wound, I think it of great importance not to remove the natural scab by fomentations, etc., for fear that, it falling off or dissolving, the joint should then open. After a kick, with a wound, however small, on the hock, it is advisable to give absolute rest. I have seen several cases where I attributed the after-opening of the joint to water-bathings having been employed. If the wound is not over a part where the joint can open, fomentations or cold bathings will be beneficial and safe. Of course, in some cases, no matter what is done, the joint will open, owing to the disintegration of the skin and subjacent tissues by the kick at the point of contact.

Aware that the treatment by shellac solution, which I have above detailed, has only been tried by me in one case, I beg to recommend it to the notice of the profession. It appears to be also well adapted to cases of open stifle and other articulations.

In conclusion, I would lay great stress on the early employment of slings in important cases of open joint. In many cases where it appears impossible to hang them, a little thought and ingenuity will find out a way.

CASES OF CARDIAC DISEASE.

BY PROFESSOR WALLEY, PRINCIPAL OF THE EDINBURGH VETERINARY COLLEGE.

RUPTURE OF THE AORTA, WITH LACERATION OF ITS VALVES.

SUBJECT: a lorry horse, upwards of eighteen years old. Previous health, very good.

On Thursday, 23rd August, the attendant observed that the horse had not quite finished his morning meal, which was given to him at 5.30; and two or three hours subsequently he refused to eat his hay. He took a load of about 26 cwt. for a distance of a mile; and while the porters were removing the load (about 10 a.m.) he was heard to give vent to a peculiar cry, similar to the yell of an injured dog, and immediately afterwards fell dead in the shafts.

Autopsy, twenty-four hours after death.

Suspecting disease of the heart, I had the ribs removed, the knacker cutting through them with an axe, when a large quantity of sero-sanguineous fluid issued from the thorax, which, as was afterwards discovered, contained much more serum, with masses of coagulated blood; the serous investment of the posterior vena cava also contained a large quantity of extravasated blood.

The pericardium was distended to its utmost by blood clots and serum. The heart was carefully removed; and on examination it was found that a rupture existed at the base of the aorta, immediately at its juncture with the ventricle—the tissues around the seat of rupture being largely infiltrated with blood. On exposing the interior of the vessel, the rupture was seen to extend for $1\frac{3}{4}$ inch in a transverse direction, through the whole of the coats of the artery, and through the junction of the two outer

segments of the semilunar valves; the laceration in this part, however, being only about an inch in extent.

The whole of the cardiac walls were dilated and soft, and by the microscope extensive fatty infiltration, with less marked degeneration, was detected (two or three fibrous nodules existed in one of the segments of the valve), and a well-developed *os cordis* (of which I have seen several in the horse) was discovered on dissection.

The immediate cause of rupture was not apparent, as the animal had not been heavily laden, neither had he been hurried, nor, so far as I could glean, frightened; in fact, he was standing perfectly still when he fell.

The predisposing cause of rupture was, of course, apparent.

EXTENSIVE AORTIC, SEMILUNAR, AND MITRAL VALVULAR DISEASE.—DILATATION OF RIGHT, SIMPLE HYPERTROPHY OF LEFT, VENTRICLE—CHRONIC CONGESTION AND PURULENT INFILTRATION OF LUNGS.—ROARING.

Subject: black cart mare, sixteen years old, or thereabouts.

History.—Had been in the possession of the Edinburgh Corporation about six years, during which time she had done an immense amount of hard straining work. For several years it was observed that she did not put on flesh; she was a bad "roarer," and had an intermittent pulse; a few days before death she was unable to rise. She suffered from palpitation of the heart and shortness of breath when hurried or excited. It had been my intention to make a careful *post-mortem* examination, but I was defeated in my object, from unavoidable circumstances. I only had the lungs, trachea, head and heart put into my possession, with a portion of the diaphragm.

Heart very large; left ventricle simply hypertrophied; right dilated, and muscular structures pale. Valves of right heart healthy. Mitral valve five or six times its natural thickness, indurated, and yellow in colour, with endocardial ecchymosis, especially in the inner cusp.

Aortic valve.—All the segments in the same condition as the mitral; there were small bony nodules under the endocardium in

the sinus Valsalvæ of one, with a half circle of osseous structure at the base of the aorta. Aorta much dilated. Lungs solidified, reddish-brown in colour, slightly glistening on section; resembled in appearance hypertrophied spleen structure, and exuded a large quantity of sero-sanguineous purulent matter when incised and pressed. Bronchial mucous membrane thickened and inflamed, bathed in pus; no discharge of any consequence had been observed from the nose prior to death. Pulmonary arterial branches healthy. Diaphragm (portion) showed a circular tumour, about six inches in diameter and two inches in thickness, section of which revealed a cyst-wall composed of the phrenic structures, enclosing a mass of soft, pulpy, dirty-brown, stratified matter, evidently blood extravasate, in which softening had commenced. The cause of this extravasate may have been rupture of a small phrenic vessel, as the result of violence by a fall.

The valvular conditions fully explain the intermittent pulse, the dyspnœa and palpitation on exertion, the state of the cardiac walls, and the pulmonary and bronchial disease. The disease being confined to the left heart explains the absence of dropsy, and the necessary implication of the pneumogastric nerve is explanatory of the roaring; while the absence of Corrigan's pulse can be understood, when the fact that the aortic valves, though very much altered, were still competent, is taken into consideration.

DISEASE OF THE WALLS OF THE HEART, ASSOCIATED WITH DISEASE OF THE LARYNGO-PHARYNGEAL GROUP OF LYMPHATIC GLANDS.—SUDDEN DEATH.

Subject: a valuable brown cob, seven years old.

History.—The animal had been known to me some time prior to Sept. 25th, 1876, and I had attended him once or twice for trifling ailments; on the date mentioned my attention was called to an enlargement of his throat, which had been in existence and had been gradually increasing in size for about ten days. The enlargement, on manipulation, proved to be localised in the lymphatic glands of the throat, and was very hard, but not very

sensitive or hot. It caused the left parotid to bulge laterally, and interfered somewhat with deglutition, and also to some extent, on exertion, with respiration; no febrile symptoms were present. Iodine was applied externally, and also freely administered until November 7th, on which date I deeply and repeatedly punctured the glands with a small trocar; passed two setons over them, and applied a strong blister; the blister was repeated on the 1st December, the administration of iodine being suspended at the time of the operation.

In the course of about three weeks, the swelling had so far subsided as to enable the animal to perform regular work without any difficulty, and prior to his death it could only be detected by manipulation—very hard and insensible.

On the afternoon of the 20th of last month, my immediate attendance was requested, and my assistant (Mr. Young), in my absence, hurried to the stables; but before he arrived the cob was dead. On inquiry, I found that he had been working up to 10 a.m., had eaten his food through the day, was observed unwell about 4 p.m., and in about half an hour afterwards he leaned against the stall and fell dead—the only accompanying phenomena of death being muscular quivers and gasping.

During the early part of the year, I attended the cob for a mild attack of "Effusive Fever," but on no occasion did I notice any symptom indicative of cardiac derangement. I may observe, however, that about three weeks prior to his death he suddenly fell on his side, while being driven; but the fall was attributed to the slippery condition of a wooden bridge over which he was passing at the time. Probably (judging by the light of subsequently revealed facts) the fall may have been due to Cardiac Vertigo.

The *post-mortem* revealed effusion into the pericardial sac; the presence of a patch of disease on the internal surface of the left ventricle, in close proximity to the left ventricular furrow, and about the size of a half-crown piece; a number of small nodular enlargements on the exterior of the right auricle; a considerable amount of thickening at the base of the mitral and tricuspid valves respectively, with nodular elevations of the endocardium and schirrhus of the adjacent cardiac structure. The glands before

mentioned were much enlarged (the whole of the group being intimately united by new tissue and weighing about twelve ounces) and very hard, but no disease of any kind was detected elsewhere, and the carcase was laden with fat.

The character of the disease I have not yet determined; and I am afraid there will be some difficulty in doing so now, as the specimens were neglected and allowed to undergo partial decomposition before any steps were taken for their preservation. But, from a hurried microscopical examination, the general characters of the diseased parts, and the clinical history of the case, I am inclined to look upon the disease as of a sarcomatous nature.

The features of importance are: the association of the cardiac with glandular disease, the absence of distinctive cardiac symptoms, and the sudden death. The case, too, is another warning to the young practitioner to carefully examine the condition of the pulse when examining a horse as to soundness, and also to seek for cardiac derangement in animals which stumble when at work without any apparent cause; and (parenthetically) I may remark upon the great value of puncturation in the treatment of indurated tumours. I have repeatedly employed this method of treatment, with and without setons; and only a few weeks since, in treating a tumour as large as my head in the neck of a horse (posterior cervical region), I punctured it deeply and repeatedly with my exploring needle, and subsequently with a Syme's bistoury. The rapidity in the subsidence of the tumour after each puncturation was simply marvellous—the horse, in fact, being able to resume work in about ten days after the last operation.

COMMINUTED FRACTURE OF LOWER THIRD OF RADIUS, AND ULCERATION OF THE FIRST PHALANGEAL ARTICULATION.

BY JOHN KIRK, VETERINARY STUDENT, EDINBURGH.

SUBJECT, a dark brown mare, "Bashful," six years old, the property of Major Gwyn.

On the third day of the Musselburgh race meeting, in October

last, as I was watching the horses taking their preliminary canter, I observed a serious irregularity in the action of the off fore-leg of the above mentioned mare. This irregularity of action was so great as to lead me to watch the subsequent performance of the animal. She was ridden by the famous jockey T. Archer, from whom I afterwards learned that at the commencement of the race the mare got well away, and appeared to do her work satisfactorily; but, quite suddenly, she stopped, made a few faltering strides, and fell, Archer slipping over her head and escaping unhurt.

Examination of the off fore-limb led to the detection of a severe comminuted fracture of the radius. The mare was immediately destroyed, and the owner very kindly gave me permission to do what I chose with her. I had her conveyed to a tanyard, removed the limb from the trunk, and forwarded it to the Royal Veterinary College for the inspection of Principal Walley, whom I assisted the following day to make a careful examination of the injured parts.

From the groom I had learnt in the interim that the mare was quite sound up to the previous spring, at which time, whilst running in the Liverpool Steeplechase, carrying a heavy weight, she fell on the off side: between this fall and her death she had shown intermittent lameness, which was attributed by the attendant to sore shin.

Owing to this history, the examination was principally directed to the detection of the cause of the original lameness, which proved to be due to ulceration of the articular surfaces of the metacarpal and suffraginous bone, the cartilage covering which was, to a large extent, removed by attrition. The ulceration was, as explained by Principal Walley, due to Ostitis, probably produced by the fall which the mare sustained in the spring, and aggravated by subsequent concussion. I have seen similar articular disease in racehorses before, and I would wish to direct attention to this condition as a probable cause of many cases of occult lameness. This mare, during the course of the meeting, had taken part in two races previous to the one in which the accident happened—one of which, "The Stewards' Cup," she won.

THE ANATOMY AND PHYSIOLOGY OF THE KERATOGENOUS MEMBRANE OF THE HORSE'S FOOT.

BY DR. MOELLER.

(*Continued from page* 282.)

AFTER the blood, which, under the combined influence of the heart's propulsive power and the above-mentioned hydrostatic *momenta*, has been driven with great force into the arterial capillaries, and there served to nourish and excite the function of the matrix tissue, it passes over into the venous networks, which have their general seat upon the posterior portions of the foot. These networks, in comparison with the supplying arteries, present a proportionally large development and extent. They lie especially under the coronary cushion and between the cartilages, and upon the elastic posterior portions of the foot. The blood collects in them in great quantities, and from them begins the difficult ascent of the blood towards the heart. The hindrances to the returning circulation are overcome, firstly, by the *vis-a-tergo*, including the pressure exerted by the arterial blood-column, but more especially by a sort of physiological pumping action which takes place in the foot. The alternate pressure and relaxation imposed upon the foot by the animal during its movements, exerts an influence to be compared to that of a force- and suction-pump. When the foot becomes charged with the weight of the body, the blood in the venous networks is forced out into the ascending venous trunks. The superficial coronary venous *rete*, as well as the deep *rete* situated under the cartilages, suffer compression thereby. The blood is consequently forced into the ascending trunks with sufficient power to overcome all *vis-a-frontis*. At the moment the pressure brought about by the weight of the body is removed, the compressed parts are released, and expand; and the venous plexuses are again filled, the suction thereby exerted contributing largely to this phenomenon. The supply to these venous plexuses must come from the veins of the foot, because the last valves are to be found upon a level with the coronary veins. We find also in the foot an arrangement for the support

of the circulation, which acts exactly as the muscles upon the limbs; indeed, it must be even more powerful, inasmuch as the obstacles to be overcome are much greater. The conditions here resemble those prevailing in the lungs. The continual extravascular pressure is also to be kept in consideration.

The action of this pumpwork can be directly demonstrated, for instance, by venesection from the vascular sole or from the digital veins; or by accidental injury to the keratogenous membrane or the veins, when the blood-stream will be observed to increase and diminish with exertion and relief of pressure by movement. Every time the injured foot comes to the ground and receives pressure, the blood will be seen to spurt out in a stream, which, when the pressure is removed, diminishes to a considerable extent.

To these physiological considerations could be added important observations as to the effect of locomotion upon the nourishment of the foot and growth of the hoof, and which are in complete harmony with facts derived from experimentation. At the same time, we must continually bear in mind the great effects thereby exerted upon all inflammatory processes in this organ. In every case of serious lameness, these factors must not only be taken into consideration with regard to the injured, but also with respect to the healthy foot. Immediately the impossibility of exerting and relieving the pressure upon a foot takes place, *the circulation in the keratogenous membrane must be disturbed.* In very painful lameness of a foot,—more especially a fore one,—must the constant relief from pressure in the injured, and continual pressure upon the healthy foot, produce circulatory disturbances in each, and which will soon manifest themselves, if the effect is persistent, by derangement in nutrition, or the occurrence of inflammatory phenomena. On the foot constantly pressed upon, the weight of the body must also be taken into consideration; as this in heavy horses, and various forms of hoof, nearly always excites inflammatory processes, from the irritation exerted thereby on the keratogenous membrane.

Finally, it remains to be noticed that the proportionally powerful blood-pressure, and especially the variations in pres-

sure upon the entire circulation of the keratogenous membrane, must exercise an important influence in producing the prolapsus of the soft parts of the foot, when the keratogenous membrane becomes deprived of its horny covering in any part of its extent. The inflammatory swelling caused thereby must be also taken into consideration.

With the functions of the keratogenous membrane we are sufficiently acquainted, from the writings of Leisering, Rawitsch, Brauell, and others. One point is, however, still a matter for controversy—viz., the functions of the fleshy wall (fleshy *laminæ et laminellæ*). The question as to whether the horny laminæ are formed from the fleshy laminæ, as Leisering, Bouley, Hunting (*Veterinarian*, 1871), assert; or if they proceed entirely from the coronary cushion, as assumed by Rawitsch, Fuchs, and Greaves, is still undecided.

In order to discuss this question more thoroughly, we must first consider the functions of the fleshy wall in a complete manner.

From the general employment of our horses upon hard roads, and especially upon paved streets, the sole of the foot scarcely enters into our cognizance, in considering what portions of the organ receive the weight of the body: at least, much less so than when the animal travels upon a soft or sandy soil. As is known, the intimate union of the fleshy-wall and horn-wall on the one hand, and of the former with the *os pedis* on the other, are of themselves sufficient to sustain the entire weight of the body. This was first brought to notice by Girard, who treated Laminitis ("Rehe") by extirpation of the sole. For, although a weakening of this union takes place in this disease, still the union is sufficient to sustain the weight of the body.

Related to this task of weight-bearing is the arrangement of the podophyllous tissue. From the immense number of ridges and furrows upon the face of the *os pedis*, the surface opposed to the "stratum periostale" for insertion is immensely increased. This inner layer of the podophyllous tissue is, as already mentioned, to be looked upon as of like nature with the tissue of ligaments and tendons. The course of the fibres corresponds entirely to this effect; they proceed at a right-angle to the wall surface of the *os pedis*, in the direction of the horny-capsule.

By this means is the inner point of insertion of this medium of union ("*verbindungs-glied*") exceedingly firm; indeed, so strong is it that, *cæteris paribus*, it only gives way when disunion has taken place from morbid processes. This firmness of union is distinctly manifested when we attempt to remove the horny capsule from a non-macerated foot. We may often succeed in breaking a piece from the *os pedis*, but scarcely ever in tearing the "stratum periostale" from its attachments to that bone. The podophyllous tissue being enormously rich in elastic fibres and dense striæ of connective tissue, is to be compared in resistibility to tendon tissue.

Finally, the union of the fleshy-wall with the horn-wall is most intimate. Here the arrangement arrests our attention; as by this union two conditions are complied with which appear to be diametrically opposed to each other. Here must *an exceedingly firm*, but still *a movable* union, be effected—a solid union, which is at the same time capable of a continual and progressive movement of one series of tissues upon another.

This task is solved in a simple and astonishing manner—viz., by an enormous increase in the surface of the fleshy-wall and horn-wall, which come into intimate relation with each other.

So far as my knowledge extends, an attempt to arrive at a mathematical idea of the extent of the keratogenous membrane was first made by a Dr. Evans, at the instigation of Bracy Clark ("Hippodonomia"). Evans came to the conclusion that this membrane was increased some twelvefold by the projections and recesses upon its surface. He estimated the inner surface of the hoof of a horse fifteen hands high at 212 square inches, or $1\frac{1}{2}$ square foot.

Before this investigation was known to me, I had endeavoured, with the assistance of the microscope, to arrive at approximate measurements of the fleshy wall, and have obtained the most astonishing results. The increase of the superficial surface is so enormous, from the formation of laminæ, and secondary laminæ or laminellæ, that one can scarcely have a conception thereof.

If we consider the height (above to below) of the fleshy-wall as 0·04 metre, and transverse section as 0·25 metre, the superficial

extent of the fleshy-wall would amount to 100 square centim. We will now endeavour to gain an idea of its enlarged superficies by means of the laminal increase of its surface. The average width of a secondary lamina amounts to 0·2 metre,—the length of the same to 40·0 mm. The surface of a secondary lamina would thus amount to sixteen square millimetres. Upon each primary lamina are, on an average, 100 secondary laminæ; therefore the surface of a primary lamina represents 1600 square mm. As there are reckoned to be about 500 primary laminæ upon the wall surface of the keratogenous membrane, the entire surface of this membrane must then represent a superficies equal to 800,000 square mm., or 8,000 square centim. The fleshy wall alone receives, through the laminal construction of its surface, an increase of 80 per cent., and amounts to three-quarters of a square metre, or 7½ square feet (German).

In making this calculation, I have always employed the lowest averages; and I do not think it too extreme an estimate to say that the superficial surface of the fleshy wall is equal to a square metre, or ten square German feet.

Although this result appears at first view incomprehensible, yet by closer study we find the arrangement to be an absolute necessity; especially when we reflect upon the immense work demanded from the foot, and what an amount of resistibility is absolutely necessary to the carrying out of its functions. It has not alone the weight of the body to bear during rest, but it must also be able to resist the powerful shocks which it receives in coming in contact with the ground. To comply so perfectly with all these demands, makes this union perhaps the most wonderful in the animal economy. We must also take into consideration the fact, that this wonderful union is at no one time stable, but that the stability is continually changing—by the growth of the horn-wall proceeding, as it constantly does, from above downwards.

These considerations have also a pathological interest. It can easily be understood that, in case of inflammation occurring in these tissues, as in Laminitis, it has a great tendency to produce pressure upon the surrounding parts, and especially upon the *os pedis*.

As Siedamgrotzki was the first to notice,* the pressure exerted upon the *os pedis* by inflammatory processes in these tissues, is much less the cause of disunion than has been generally assumed; but the latter is far more dependent upon a diminution of the intimate union which is normally present between the flesh-wall and horn-wall, and at the same time the effect produced by the weight of the body upon the *os pedis*. I hope at another time to return to these most important matters, in considering the pathological conditions of these organs.

We must, however, notice that also from such a continued and uninterrupted action of the weight of the body upon this suspensory apparatus as occurs in continued and painful lameness of the opposite foot (Laminitis, Navicularthritis), a solution of the union, combined with inflammatory processes, may happen in a previously perfectly healthy foot; so that the final effect may be the same as that produced by Laminitis,—that is, the descent of the *os pedis*, and more or less rotation upon its ideal transverse axis,—as Siedamgrotzki has shown. The pathological processes which result in consequence of Laminitis, give us a *sure proof* that the horny sole plays but a very insignificant part in supporting the weight of the body.

The task of the fleshy wall to serve as a suspensory apparatus for the *os pedis*, has been long known to English authors, and was especially emphasized by Spooner,† Blaine,‡ Bracy Clark,§ and Bourgelat.‖

From this digression we will return to the consideration of the mode of development of the inner layer of the horny wall,—the horny laminæ. I cannot here take notice of all the views which have prevailed on this subject. No one will now doubt the incorrectness of the assertion of Fuchs,¶ that the intertubular horn of the horny wall was entirely produced from the fleshy laminæ. The same may be said of Brauell's view,**

* *Bericht über d. veterinairwesenen im Königr. Sachsen.*, 1872.
† On the Foot of the Horse. ‡ On the Horse. § Hippodonomia.
‖ *Essai Théorique et Pratique sur la Ferrure.*
¶ *Mittheilung aus dem Gebiet der Thierarzneikunde*, Karlshruhe, 1847.
** *Mag. für gesammte Thierheilkunde*, Bd. 19.

that the intertubular horn of the inner strata of horn-tubes was derived from the same source. Leisering * justly remarks that these assertions are vanquished standpoints.

The only question remaining open is this: Are the horny laminæ produced from the fleshy laminæ, as Bouley,† Leisering,‡ and Hunting § assume; or is a portion of the coronary cushion, the matrix of the same, as asserted by Rawitsch‖ and Greaves?¶

Those who desire to study all the details of this question more fully, are particularly referred to the above-mentioned work of Prof. Dr. Leisering, of Dresden.

The most trustworthy course by which to arrive at a satisfactory answer to such an important question is, without doubt, that by measurements,—a course which seems to have been entirely overlooked by previous authors. I have endeavoured, by treating the subject in this manner, to arrive at a satisfactory conclusion; but before I allude to this, I will first give the results of the measurements.

The specimens were prepared in absolute alcohol, and transverse sections of the horny laminæ were taken in different sections of the wall, in such a manner that all the dimensions of the vascular as well as the horny laminæ could be at once taken. In the localities indicated, the length of the primary horny laminæ was as follows:—

1.	1 m. under the coronary cushion . . .	0·6—1·0	mm.
2.	2—3 ,, ,, ,, . . .	1·5—2·0	,,
3.	5 ,, ,, ,, . . .	2·5—3·3	,,
4.	Upon the limits of the superior third of the wall	2·7—4·0	,,
5.	,, ,, under end of the wall	4·0—4·5	,,

Sections taken in the course of the laminæ give the following: viz., those taken at the superior or coronary limits of the laminæ show the latter to begin sharply at this part, and quickly increase in height (width), so that at 5 to 7 mm. from the coronet the greater part of them have attained their maximum. The above measurements, to which no claim for complete exactness is made, when controlled in this manner, will in general be found correct.

* *Der Fuss des Pferdes.*
† *Traité du Pied du Cheval.*
‡ *Fuss des Pferdes.*
§ *Veterinarian*, 1871.
‖ *Mag. für Ges. Thierheilkunde*, Bd. 28.
¶ *Veterinarian*, 1871.

The form of the primary horny laminæ will correspond to the adjoining diagrammatical illustration.*

FIG. 8.
a. Coronary cushion.
b. Horn-wall.
c. Flesh-wall.

Those situated on the superior end are pointed, or more acute; corresponding to an angle of 30° to 35°. The fleshy laminæ must necessarily have a corresponding form on their superior end. One can easily convince himself of this by taking longitudinal sections of the same.

These outlines are due to the fact, that the fleshy laminæ are inclined in their superior extremity towards the coronet, or it may be said that the intervillous spaces of the coronet gradually merge into the furrow-like recesses (sulci) of the fleshy wall; because the limits between the fleshy wall and the surface of the coronary cushion form a slight furrow, instead of an angle. In this, the beginning or superior portion of the fleshy wall, is to be sought the chief point of generation of the primary horny laminæ, and the base of the above-mentioned groove is to be especially looked upon as the seat of the development. The fleshy laminæ scarcely contribute at all to the formation of the horny laminæ, because, very soon after their origin from the coronet, they are provided by the secondary fleshy laminæ or laminellæ, from which the formation of the SECONDARY horny laminæ proceeds. A production of primary horny laminæ from the primary fleshy laminæ can, therefore, be no longer spoken of; for their surface is almost entirely taken up by the secondary fleshy laminæ.

The further development of the primary horny laminæ results from the secondary laminæ, situated between the primary fleshy laminæ. These deposit upon the free edges of the primary

* This form varies in different hoofs: the angle is smaller in flat hoofs,—larger in very oblique ones.

horny laminæ new masses of epithelium, which, on account of their having attained a slight degree of hornification, are easily coloured by tinctures.

The conditions are very different with respect to the secondary horny laminæ. As already remarked, the primary fleshy laminæ are, soon after their origin from the coronary cushion, furnished with secondary fleshy laminæ, presenting a like construction. These last are at first found at a more or less right-angle position to the primary ones; further on, their relation to the primary laminæ becomes more acute, the angle being open towards the free edge of the laminæ. The number of secondary laminæ increases rapidly—indeed, so long as the primary continue to increase in height. The secondary fleshy laminæ are found fully represented on the inferior limits of the superior third of the podophyllous tissue; as a rule, before attaining this situation their number is fifty or sixty to each primary lamina.

From the known variations in the direction of the wall, the secondary fleshy laminæ present some diversity in their course towards the inferior border of the fleshy wall. The secondary horny laminæ, as well as the fleshy, increase constantly in length (height) as they proceed downwards: at first more abruptly, then more slowly; both, however, being higher. In thickness they coincide with each other. *While the secondary fleshy laminæ in this relation gradually decrease, become weaker and thinner, the secondary horny laminæ increase in like ratio.* As already remarked, the secondary horny laminæ are composed, for the greater part, of slightly or non-hornified *rete* tissue. The formation of these *rete* masses is, therefore, the function of the secondary fleshy laminæ, as also the podophyllous tissue. As the horn-forming process takes place very slowly in the cells, so must the thickness of the "Stratum mucosum" upon the fleshy wall increase from its superior to its inferior limits,—a circumstance of much importance in considering many pathological processes in this organ. This result takes place at the expense of the fleshy wall. Not only do the secondary fleshy laminæ lose in dimensions, in ratio with the increase of the secondary horny laminæ, but the thickness of the more connected and

deeper layers of the fleshy wall likewise becomes less from above downwards. *The rete tissue grows at the expense of the corium, at the same time penetrating its tissue.*

From the above remarks, we are able to understand exactly the nature of the reciprocal relations existing between the secondary horny laminæ and the secondary fleshy laminæ ; and here also is to be found the key by which to explain why it is possible for such a production to take place inside of a closed and unyielding horny capsule. The corium—the fleshy wall—must itself supply the space required by the newly-generated mass, so that its own production becomes less also. The correctness of this assumption is proved by direct measurements, as will be seen by the following table :—

	Measurements taken from the inferior limits of the superior third of a normal foot.	Measurements taken from the inferior limits of the fleshy wall or podophyllous tissue.
1. Thickness (height) of the primary fleshy laminæ	0·1 —0·2 mm.	0·05 mm.
2. Thickness (height) of the secondary fleshy laminæ	0·04—0·08 ,,	0·02—0·05 ,,
3. Thickness (height) of the primary horny laminæ	0·03—0·05 ,,	0·03—0·05 ,,
4. Thickness (height) of the secondary horny laminæ	0·03 ,,	0·08 ,,
5. Width of secondary fleshy and horny laminæ	0·15 ,,	0·25—0·35 ,,

It should be remarked that these are but average results, the chief importance of which lies in their relation to each other ; for it is self-evident that the variations in form and size of different feet must also give like variations in measurements.

The variations in form which the laminæ offer in their course from the coronary limits to those of the lower margin, are the following :—

1. The increase in height, proportionally most marked upon the secondary laminæ, and continuing the entire length.

2. The thickness of the fleshy laminæ decreases ; the primary horny laminæ show no essential deviations in this direction. The secondary horny laminæ, however, show a considerable increase in thickness.

The productive activity of the fleshy wall consists chiefly in the generation and increase of the secondary horny laminæ; for the increase in extent (*Verbreitung*) of the primary horny laminæ is the effect of their secondary horny laminæ. The latter consist, as has been already noticed, of *rete* cells, the majority of which are not at all, or only in part, hornified. Only the oldest of these cells—those which are in immediate relation with the primary horny laminæ, and those formed in the middle of the secondary laminæ—undergo this process gradually; so that a transverse section of the primary horny laminæ presents a very irregular border, their surface being covered with slight elevations (*Leisten*), which alone deserve the name of "secondary horny laminæ." Those *rete* cells upon the inferior margin of the fleshy wall become transformed into horn, and contribute to the formation of the so-called "white line" between the sole and wall.

We can see, from what has been said, that the horn-generating ability of the fleshy wall is very unimportant; any increase in thickness of the hoof from this source is not worth mentioning This is not the function of the fleshy wall or podophyllous tissue; its task is to provide a firm union between the hoof and the *os pedis*, while at the same time this union must be of such a nature as to allow the continual growth of the horny box from above downwards, without in any manner impairing the solidity of this union. This principle is manifest in the structure of the entire fleshy wall. Nature has conformed all to this requirement.

As already shown, the firmness of the union between the horny capsule and the *os pedis* is secured by the closely woven and tensely outstretched elastic and connective tissue, and also by the enormous increase in the surface of the cutis. The remaining portion of the task is to provide a bond of union between the sensitive corium and the dead mass of the hoof, without injury to the former, and at the same time admit of the gradual growth downwards of the latter. To this end is the immense mass of reticular tissue deposited between both. As in all parts of the true cutis such tissue forms the intermediate substance between corium and epidermis, so here within the hoof-capsule the constancy of natural laws holds good. The cellular nature of this tissue also adapts it wonderfully for its

second task—the downward growth of the hoof-wall. Those elements which are capable of moving without injury to themselves or to the tissue, contribute most wonderfully to the above-mentioned necessity. The horny capsule, in its downward growth, thus takes with it some of the cellular element of the *rete*, whose departure is immediately compensated for by those more profoundly situated. In this manner is a disjunction of the connection between *os pedis* and hoof-wall rendered impossible, while at the same time the continual movement spoken of is maintained. I can, therefore, but reiterate my former views *—viz., that the productive activity of the fleshy laminæ is not of special importance for the hoof, either in intra- or extra-uterine life. During the period of development, on the contrary, the same play a prominent part in the development of the fleshy sole.

Authors have spoken of the great productive power of the fleshy wall without sufficient justification; having drawn their conclusion from pathological conditions, and transferred these to normal ones, in order to show how the development of the horny laminæ took place. What *may* take place under pathological conditions, is by no means a logical necessity in physiological states. This manner of drawing conclusions is to be likened to a man who would conclude as to the nature of the volar epidermis of all men, by studying that of a smith or other hard-labouring man. Every irritation of the elements of the fleshy wall excites an enormous multiplication of these elements; and if the exposed fleshy laminæ are in a condition to protect themselves with thick masses of horn, this is no proof that they must always produce such masses, but only shows that under certain conditions they can produce an epidermic covering.

It is not my intention, at this moment, to enter into an exhaustive criticism of the various views entertained upon this subject. According to the conclusions I have here presented, it seems evident that none of these views can lay claim to absolute correctness.

The question as to whether the coronary cushion or the fleshy wall shall be looked upon as the matrix of the horny laminæ,

* *Magazin für Ges. Thierheilkunde von Gurlt u. Hertwig*, 1872.

is narrowed down to the inquiry whether the narrow groove situated between the coronet and the fleshy wall is to be considered a part of the former or of the latter? It does not seem as if there need be any doubt or hesitancy in considering it as a portion of the fleshy wall. Where laminal construction begins, is the beginning of the wall. We must not place the ideal surface of the fleshy wall at the base of the laminæ, but upon the free edges of the same; therefore this part evidently belongs to the fleshy wall.

These considerations give us the explanatory key to many pathological processes occurring in the keratogenous membrane. The presence of the "Stratum periostale" (composed, as we have seen, of a dense network of elastic and connective tissue, and very few bloodvessels and lymphatics), and its intimate relation with the *os pedis*, must be looked upon as the reason why inflammatory processes in this part and the sole do not at once extend to the osseous tissue. If, however, this tendinous tissue become involved in a suppurative process taking place in its vicinity, it shares the fate of tendons or cartilage—becomes necrotic; and this last process is generally complicated with necrosis of the *os pedis*. In such cases, sequestræ of the *os pedis* take place quicker than upon the "Stratum periostale" of the keratogenous membrane. The necrotic piece of bone is often detached long before the necrotic portion of the "Stratum periostale,"—so that one often finds it necessary to perform an operation for the removal of the necrotic parts. Inflammatory processes occurring on the surface of the fleshy wall always follow the course of the laminæ, and finally appear at the coronet. These are those processes which take place in the richly-developed *rete*, situated upon the surface of the corium. These must naturally reach the coronet sooner than any other portion, on account of the laminal structure, even if the entire surface of the wall is involved. The arrangement of the coronary papillæ in rows, and in a course corresponding to that of the laminæ, favours this breaking out at the coronet; so that one may seek the focus of the pathological process by following the course of the horn-tubes.

The presence of a subcutis, and the immediate connection of

its various parts with portions of the keratogenous membrane, makes clear to us many pathological changes, especially the extension of inflammatory processes from the fleshy wall and sole to the cartilages, and the manner in which cartilaginous fistulæ (Quittor) are developed, as well as the complications of the tendon of the *flex. dig. profundas* and the *os naviculare*, by suppurative processes in the tissues of the fleshy frog and frog-cushion. These processes are in general of phlegmonic origin. The difference in gravity of the inflammatory processes in the single divisions of the keratogenous membrane, find a scientific explanation in the variation in its anatomical structure. To make this manifest has been the aim of this contribution.

[The conclusions at which Dr. Moeller arrives, in his very interesting paper, with regard to the functions of the laminæ and particularly the share the vascular leaves have in the production of the horny leaves, are quite in harmony with those we had formed after our extensive series of observations in 1870 and 1871, and which are alluded to in Moeller's valuable article. In a contemporary journal, in 1871, we wrote: "There can be no doubt whatever as to the keraphyllæ (horny laminæ) being generated at the lower margin of the coronary cushion, at the part we have designated the 'coronary or white zone,' and at the junction of this with the vascular laminæ. We have remarked that in this situation the villi are so disposed as to leave narrow spaces between them, and that these spaces correspond to the more or less regular linear imprints in the cutigeral cavity, and which are continuous with the horny laminæ. This feature alone would almost suffice to prove that these leaves commence to be formed at the coronary zone, and that they are part and parcel of the wall itself—not a subsequent formation proceeding from the podophyllæ (vascular laminæ), and merely attached to it by simple agglutination, as has been imagined. The horn-cells or epidermic material intended for the constitution of the horny laminæ, is formed on the surface of the coronary zone, and between the vascular laminæ at their origin; the latter serving as a mould, so to speak, in which this horn material receives its characteristic shape. . . . Under ordinary conditions,

therefore, the podophyllæ contribute but little towards the formation of the horn plates with which they interdigitate, and that only at their commencement, where they combine with the coronary cushion to complete the keratogenesis and lamellar configuration of the inner face of the wall of the hoof.' We need not say that we are glad to find our views on the anatomy and physiology of the horse's foot confirmed by such a painstaking and able investigator as Professor Moeller, and we hope he may continue his researches in this direction.—ED. *V. J.*]

TRANSMISSION OF ANTHRAX FEVER BY THE INGESTION OF DISEASED FLESH.

IN the *Annales de Zoötechnie et de Méd. Vétérinaire*, there is an account of the transmission of Anthrax to dogs, by the ingestion of the flesh of a cow which had perished from the disease. The carcase lay in an isolated place unburied, and as it was winter, no person or animal, save dogs and wolves, could get near it. Of seven dogs which visited the carcase to feed, five succumbed on the evening of the same day, the other two being extremely ill. All presented symptoms of Anthrax Fever at its maximum : extreme prostration, tumultuous beating of the heart, flanks excessively agitated, diarrhœa, etc. The cow had received no medicines, the only treatment to which it had been submitted being friction with oil of turpentine on the skin.

In the *Recueil de Méd. Vétérinaire*, M. Dus, of Mehun, gives a description of an outbreak of Anthrax among pigs, dogs, and birds, evidently due to the same cause. Four days previously to his having been called in to attend the former, a cow had died suddenly in the village, was skinned, and the carcase left unburied not far off. On the day on which he was sent for, the pigs had found their way to the dead cow, and ate as much as they desired. The pigs were a boar and four sows. The chief symptoms were dulness, the creatures lying buried beneath the litter, and loss of appetite. In one the voice was husky and weak ; in another, which was dying, the prostration was so great that it could not get up, the flanks were agitated as if it had been running fast and long, the voice had nearly disappeared, and there was a slight œdematous swelling about the throat, the skin of which had a violet tint. The autopsy revealed pathological changes similar to those found in Anthrax Fever, except that the spleen was not enlarged.

It afterwards transpired that an empiric had been treating the cow when it was nearly dead, and that he had introduced his arm into the rectum, with the object of emptying it. When he withdrew it, it was covered with blood, and this was removed by washing with cold water. In two days there was great itching in the arm, caused by the presence of two small pimples, which soon became developed into an unmistakable malignant pustule—from which, in three days, he perished. Two dogs belonging to him, and which ingested the matters he vomited, were attacked a few hours subsequently ; and one, which was young, died in twenty-four hours ; the other recovered.

The village dogs, to the number of about twenty, which had regaled themselves on the remains of the cow, were all seized with illness, and at least five of them died. Near where the carcase lay, several magpies and crows were found dead. No other cases of Anthrax Fever in cattle were witnessed in the village. This, therefore, must have been one of a purely sporadic kind.

Editorial.

THE PREVALENCE OF GLANDERS AND RABIES.

We have often drawn attention to the gradual increase in the prevalence of certain contagious diseases of animals, other than those which, from their greater contagiousness or rapidity of extension, as well as destructiveness or troublesomeness, attract more notice. On several occasions we have pointed out that two most serious maladies—Glanders and Rabies—transmissible and invariably fatal, not only to the species of animals in which they originate or to which they are peculiar, but also to other species and mankind—are now alarmingly prevalent, and likely to continue so; as we cannot discover that, in this *laisser aller* country of ours, any sufficient or efficient steps are taken to check or suppress them. With regard to the first-named disease, it is certainly the fact that we have no means of arriving at a satisfactory conclusion as to the extent to which it prevails; but that glandered horses are numerous, and that they traverse the streets and drink in the water-troughs of our towns and cities, cannot be denied. This is, we believe, well known to very many veterinary surgeons—one of whom, not long ago, volunteered to show us at least thirty cases of the loathsome and dangerous malady within a very small district in London. The horses chiefly affected are those worked at night in cabs, when the existence of the disease is difficult, if not impossible, to detect. When suffering from Glanders in a chronic form, horses may be utilised for months, and sometimes years, and be at the same time active agents in the dissemination of their disorder. That the malady is common in cab-horse stables, and that it occasionally destroys human life, is exemplified in the interesting case recorded in the *Lancet* for September 29th, of an unfortunate stableman who died of Farcy in St. George's Hospital, and who had been in contact with glandered and farcied horses for five or six months previous to his illness, and for thirty-one days subsequently. And a few weeks ago we were invited to St. Bartholomew's Hospital to see a dying boy, who was supposed to be suffering from Farcy, which, it was surmised, he had got from drinking out of public water-troughs: at least, the origin of the disease could be traced to no other source. Other instances of our fellow-creatures perishing from this transmitted scourge have recently appeared in the medical papers; so that, in addition to the loss of property caused by Glanders, we have people destroyed by this painful, lingering, and most disgusting disease.

The reason for the prevalence of Glanders is simple. We have no proper laws to suppress it, nor, if we had them, are there any agents for carrying them effectively into operation. The police are, in reality, the detectors of the disease; but even if they could recognise it, or knew of its existence in stables, they have no power of entry into these. Until there is a suitable sanitary organization to deal with this and other contagious maladies of animals, we must be content to suffer in property and person. The Veterinary Department of the Privy Council frames

laws according to its lights, but leaves their execution to Providence and the local authorities. It requires no gift of prophecy to foretell what will happen under these conditions.

With regard to Rabies—a disease which the Veterinary Department does not recognise—the present wide-spread outbreak was foretold by ourselves so long ago as 1872. When engaged, in 1866, in collecting materials for the last portion of our "Chronological History of Animal Plagues" (published in 1871), we were struck by the increase in frequency of this disease; and the certainty that it would continue to extend its area and become more prevalent, induced—we had almost said "compelled"—us to publish a monograph ("Rabies and Hydrophobia") on it in the following year. In the preface to that work, after alluding to the many cases of Rabies and Hydrophobia reported, is the following passage: "There can scarcely be any doubt that this prevalence and extension of Rabies is largely due to the ignorance prevailing with regard to its nature, the symptoms which precede its more violent stage, and the almost total absence of efficient veterinary police measures to suppress it, as well as to the existence of dangerous errors, which have become so deep-rooted in the popular mind, through their transmission from generation to generation, that it would seem an almost hopeless task to attempt their eradication." And again, at the conclusion of the historical portion of that work, when dwelling on the progress the disease had made since 1866, it is stated that "the wide and serious extension of this epizoöty over the country appears to have been largely, if not altogether, due to the insufficiency of the police measures adopted in the different districts, the late period at which they were introduced, the want of a proper and uniform sanitary organization to combat the spread of this and other contagious diseases of animals, and the general ignorance prevailing with regard to its symptoms and nature." It was also insisted that, unless suitable measures were devised, this country would be severely visited by Rabies and Hydrophobia. In 1875, in "Veterinary Sanitary Science and Police" (vol. ii. p. 222), attention is still more persistently drawn to the fact that the disease was yet more common, and was occupying a wider area; and since then, in the pages of this Journal and elsewhere, we have not ceased to refer to it. Almost every day we find deaths from Hydrophobia recorded in the newspapers, and the medical journals are continually reporting them: quite recently, one number of the *Lancet* had an account of no fewer than three cases. Rabies has appeared in parts of the country where it has hitherto been almost, if not altogether, unknown—as in Scotland and Devonshire; and in London, where it used to be very rare indeed, it is now becoming a comparatively familiar disease; while the number of people bitten by dogs is something more than extraordinary.

For years we have stood alone, as is proved by the evidence we have adduced, in protesting against the culpable carelessness and apathy which leaves the community exposed to the pains and panics of Rabies and other maladies of this class, and we suppose we must continue to do so for a long time to come. Seeing the risks to which veterinary surgeons are liable in their dealings with the two diseases just mentioned,

we would anxiously remind them of the great need there is for exercising care, so as to avoid becoming infected by either of these fatal scourges. They may also render a great service in this direction by warning others, and impressing upon them the necessity for precautions.

ANIMAL PLAGUES IN AMERICA.

THE New York correspondent of the *Standard*, writing on September 29th, in alluding to a serious epidemic of Yellow Fever among the people of Fernandina and other tropical and semi-tropical parts of that region, mentions an outbreak of Texas Fever which appears to have caused some alarm, as well as Diphtheria among animals. He says :—

"The Cattle Fever, commonly known as the Texas Fever, like the pest of Fernandina, is awaiting the coming of frosts. Frost arrests all these southern Fevers, as well in beasts as in men. As early as the 8th instant, there were reports of cattle dying of Texas Fever in the northern and western states—especially Ohio and New York States; and on the 24th it was reported by trustworthy parties as raging with much activity among the cattle in Delaware county, in this state. All the neighbourhoods affected trace its origin to Texas cattle; and one writer describes it as always appearing with the tick generally found on Texas cattle. Frost will arrest it there in a few days. Wherever Texas cattle or 'Indian stock' have been brought—and the active beef markets of Texas and Indian territory have pushed them all over the country almost—the Fever follows. When droves of beef-cattle are driven across the country the disease follows the track, thus clearly establishing the connection between the cattle and the Fever. In Ohio, Pennsylvania, New York, Kansas, and some other states, this Texas Fever has appeared, following the trade tracks of dealers in south-western cattle. It was not known in New York probably earlier than 1868, but since then it seems to have appeared every year, ending its ravages with frost, which is rarely later than the 1st of October. In Ohio, the newspapers have represented the ravages of the Fever as widespread; but the object of the agitation seems to have been to induce farmers to take precautionary measures to prevent its spreading. They reproduce a report issued by the Missouri State Board of Agriculture, from which we learn that the disease first appeared in that region in 1853, from a drove of Texas cattle sold in Sarcoxie county, Mo., the winter before that time. Again, in 1866, a herd of 3,000 beef-cattle started into Missouri from the south; but the citizens, warned by the experiences of 1853, met and required the drovers to turn back. That year and 1867 were marked by exceptional fatality of the disease—single counties losing cattle, it is stated, to the value of 300,000 to 500,000 dollars a year. Works on Cattle Plagues trace this disease still further back; and a writer in an Ohio newspaper, Mr. John Yonkerman, a veterinary surgeon of Cleveland, gives this account of it: 'The disease now prevailing among cattle in our immediate vicinity and community, known as the Texas Fever, is the same as existed in Barendrecht, South Holland, in 1844, and was first discovered on September 21st of that year; and a few days after it was found to have broken out in Jesselmonde, Riderkerk, and several other places. At first it was thought to be a disease called the Pestbrand, which had been there a few years before, but upon examination it was found to be another disease—namely, Snot-vaar. It was also discovered in Germany, and known there by the name Catarrfieber (Catarrh-fever).' The Germans appear to have traced the disease to the eating of some poisonous plant which

affected the blood and the lungs, causing the discharge from the nose by inflaming the lungs and windpipe. 'Nevertheless,' Mr. Yonkerman adds, "this disease is classed under pest diseases, such as Spanish Fever, Pest-brand, Rinderpest, and others of that nature, and therefore the so-called Texas Fever is liable to go into either of the above-named pest fevers.'*

"The western agricultural societies are taking steps, and looking to a strict quarantine of all Texas cattle, meaning to prevent the future spread of the disease by preventing the introduction of the cattle that so invariably bring it among them. And yet a cattle dealer of Cleveland takes the ground that the same disease has been prevalent near Cleveland to a greater or less extent for fifteen years, and his experience goes to show that Texas cattle do not communicate it to the natives. The secret of the whole matter is probably to be found in the fact that southern cattle (just like any other animals), acclimatized to 33 degrees of north latitude, suddenly, and by unwholesome means, transported to 41 degrees, will generate fatal disease of some sort; and northern beef-dealers are but too ready to find some reason to exclude the competition of southern cattle raisers. But, whatever the origin, it is a painful fact that apparently contagious fevers are carrying off thousands of the best cattle in the states named, especially in Ohio and Pennsylvania; and the utmost precautions are necessary to arrest the pest, whatever it is, in the future. In this connection, mention may be made of the recent failure of the Samuels Brothers, exporters of cattle and beef from this city to Europe. Their creditors, representing claims for nearly 200,000 dollars, it is stated, have signed a settlement accepting 25 cents on the dollar cash and five cents on time. One of the firm reckons their losses at about 50,000 dollars. The Messrs. Eastman and Co., who were the pioneers at this new branch of trade, are said to have succeeded fairly well; but the business in general is considered rather risky. The Texas Fever scare which the beef men of Ohio and Pennsylvania are getting up, is designed—if there is a design in it—to damage this exporting beef trade, and it should be carefully scrutinised before believed fully. The new and baffling disease among horses which has made its appearance within the past week in New Jersey, has less commercial importance than the Texas Cattle Fever. At Madison several deaths are reported daily, and thus far none have recovered. The disease has some of the characteristic symptoms of Diphtheria, and seems to be unknown to the veterinary doctors of that little town."

THE PRESIDENT OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

THE following remarks, relative to the President of the Royal College, appear in the *Army and Navy Gazette*:—"When Sir James Elphinstone retires from the representation of Portsmouth, Major-General Sir Frederick Fitzwygram, Bart., whose seat is at Leigh Park, Havant, has, we understand, consented to offer himself as a candidate in the Conservative interest; and it is certain that Portsmouth could find no more worthy successor to the much-respected baronet, who, for twenty years, has enjoyed its confidence. Sir Frederick Fitzwygram's return would occasion the highest satisfaction in the army, of which he was, until lately, a most hard-working member."

* We fear Mr. Yonkerman's notions of the pathology of these diseases is rather confused. Rinderpest is unknown on the American continent, and we believe the German Catarrh Fever also. We cannot understand Texas Fever passing into either or all of the above maladies, any more than we could human Variola into Measles or Scarlatina.

We need scarcely say that the veterinary profession in this country would hail, with the greatest delight, the advent of our esteemed President in St. Stephen's.

As in the army, so in Red Lion Square and elsewhere, Sir Frederick has worked hard, and most successfully, for our profession, which has no representative in parliament. His presence in the House would undoubtedly prove of the greatest benefit to veterinary science, and to the public; and we have no doubt that those members of the profession who can aid in any way in securing his election as M.P. for Portsmouth, will exert themselves to the utmost to realise this most desirable object.

THE ARMY VETERINARY DEPARTMENT.

SOME months ago, we stated that a new warrant for the Army Veterinary Department was being prepared. A contemporary military journal makes the following remarks with regard to it :—"There is at length a chance of the New Veterinary Warrant appearing, as the draft of it has already been submitted, and, we believe, even approved. That the present conditions of service for veterinary officers require to be modified, the state of the Departmental List constitutes a sufficient proof. There are upwards of twenty vacancies to be filled, whilst there are absolutely no candidates for them. But under the vigorous direction of Mr. J. J. Collins, we shall hope to find a more favourable state of things inaugurated."

THE ROYAL VETERINARY COLLEGE.

AT the opening of the session of the Royal Veterinary College on October 1st, Major-General Sir Frederick Fitzwygram, Bart., in the chair, Professor AXE delivered the following excellent introductory address :—

"MR. CHAIRMAN AND GENTLEMEN,—To-day may be regarded as the birthday of our profession, and I am entrusted with the pleasing task of addressing you in commemoration of that event. The importance and responsibility which attaches to this duty I have endeavoured to realise in its widest sense, and while I am encouraged by the honour which the task affords to assume the scholar and the sage, I am, nevertheless, conscious of my inability to emulate in sentiment or in diction the least distinguished of my colleagues or their predecessors. An introductory address is a time-honoured custom observed by all medical schools, and thereby admitted to be an essential part of the curriculum. If, however, such was not the case, if those who are just entering on the threshold of science, and others who have already passed beyond her portals, were not enriched by an inaugural thesis, there is surely in these reunions of the profession, these assemblages of long-parted though kindred spirits, these gatherings together of past generations of men, a sufficient motive for the continuance of introductory lectures—aye, to the end of time. In this assembly I recognise many pupils of the oldest and most revered of our staff, men who bloomed in the spring-time of our craft and bore the burden of her launch. Many of those lusty voices which raised the loud cheer as the untried bark left her moorings have passed away; but the still remaining few bring with them an inspiration and a charm to such assemblies as the present, and lend a dignity and value

to our proceedings here which we long desire to enjoy. Those who have ventured to regard introductory lectures as merely matters of form, 'more honoured in the breach than the observance,' can have no sympathy with social influence, and still less with the young minds that are eager to embrace and follow the counsel and precepts of those who for years have watched the follies and failures, the honours and achievements of student-life. But for the demands of duty I would gladly quit the oft-beaten track and discourse new themes which time and circumstances have pressed into the legitimate sphere of our contemplation. I might invite you to consider the ever-enlarging relation of veterinary science to other scientific institutions, as well as to the country at large. I might descant on the identity of those laws which govern diseased processes in man and the lower animals, and the uniform principles which dictate and guide the practice of human and veterinary medicine; but the connections of these two branches of physic find their most complete elucidation in the symmetry and interchange of disease and the life-history of parasitic creatures. No less important are the ties that bind us to law than are those which bind us to the sister profession, whether we regard the former in its statutory or administrative capacity. It is a healthy and a cheering reflection that the services of our profession contribute in no small degree to our national justice and humanity. Every day the contingencies which attach to some of our patients are made the pretext for litigation, either at the instigation of ignorance, or the odious trickster, whose devices and villainy encompass and foul the infirmities of horseflesh. It is here that our special training is recognised and applied to the administrative function of the state. It is here that the science of veterinary medicine declares its existence and power for public good. If I could point to no other relations of law and veterinary science, enough has been said to indicate the growing importance of our calling; but I recognise in the Contagious Diseases (Animals) Act, and the precedents which govern the law of horses, an embodiment of scientific data peculiarly our own. It is in regard to that section of political economy which deals with the food supply of the nation that veterinary science claims its more intimate relations with the people; and the fact that nearly two-thirds of the losses which overtake our meat stock are the result of causes completely within the control of a judicious application of hygienic and sanitary principles, imposes on us a serious responsibility. Were I permitted, I might show how vast is the field for scientific enterprise opened up by this question, and how wide and complete the range of knowledge required to grapple with all its details. If there is one subject in which the wisdom of recent reforms in our educational system stands out more boldly than another, it is in this—the science of preventive medicine. It is here that laurels are to be won, but only by the patient, energetic, determined exercise of the highest culture which you can command. Leaving to the senate house and the senators of our profession general political considerations, forms of government and means of progress, I propose to address myself more especially to you who commence to-day the most important mission of your life—you who perhaps for the first time accept the responsibility of self-government, and the honour of your name and calling. Firstly, then, let me congratulate you on your choice of our profession. By it you enter into the service of science, and accept the manifold obligations which she and her votaries impose upon you. In all ages the practice of medicine has been regarded as the most sacred of callings. To assuage pain, to alleviate suffering in all its varied forms, to preserve health and prolong life, is the noble undertaking you have endorsed by your presence here to-day; and I would ask, can it be that the absence of articulate speech, or the higher mental endowments of man, renders the exercise of our calling less noble or humane? No! Man's humanity to beasts

becomes his moral nature no less than his humanity to man. While the psychical attributes of the latter add dignity and power to a physical organization which we regard as perfect in all its details, the subservience, utility, and beauty of the former commend them to our care and protection in the name of God. Indeed, to minister to the unspeakable suffering of the brute world is not only ennobling, but divine. Encouraged by these reflections, you will start on your journey armed with a well-attested general education—an education which has been considered sufficient to enable you to appreciate the nature and importance of vital phenomena, and to apply the principles arising out of them to the exercise of your future calling. It may be that many stages of this journey will not have been accomplished before difficulties block the way. Some exaggeration of the task before you, some weak place in your education, some want of attention, or feeble application, some lack of patience or want of heart to persevere, will probably beset your path. Here, gentlemen, the soothing biography of greatness, the encouraging, nay, impelling history of men, communities, and nations, will serve to dispel these illusions, to rouse and concentrate the mind, to stir and quicken thought, and create a healthy and lasting ambition, beneath which fear, fancy, and weakness will steadily decline. One of the greatest of human failings is self-distrust—that abnegation of hope to one's self which lowers the mental tonus and dissipates the will. The wealth and strength of mind which glorifies genius, exalts the man, and triumphs over triumph, can never be developed under the restrictive qualms of such a condition. Encourage, then, in your career that spirit of self-reliance, of indomitable perseverance and unceasing energy which modelled the art and science of medicine out of a crude empiricism. Banish from your minds the idle, ignoble hope that accident will bring what work alone can achieve, and strive after that proud and manly sentiment so honestly expressed by Sir Humphrey Davy when he said, 'What I am I have made myself.' Exuberance of riches and baubling titles may and do fall to the lot of the indigent and ignorant, as well as to the intelligent toiler in business, art, and science; but the greatness of material wealth is the meanest of man's possessions—the thief that stifles the golden impulse to greatness, and too often abdicates in favour of poverty and ruin. The history of great men is the history of industry and progress—nay, the history of conquest and civilisation. In the ranks of medicine I might point to many whose achievements are as great as the victories of arms, and whose brilliant examples I invite you to emulate. John Hunter, that knight of the hammer, that type of energy and enduring application, commenced his noble task under disadvantages and difficulties which I venture to think do not encumber the path of any one of you. Without an education, he found himself, at the age of twenty years, in the humble capacity of a carpenter, and with just such means as his daily work afforded. But he inherited an iron will—that mighty instrument of great men—and as he plied it to the fixed purpose of his life, it grew in force and extent, under the genial warmth of success, until difficulties became incentives, and out of a life of the purest and most unceasing devotion to Nature's works, was evolved the foundation of zoology and surgery, and the most comprehensive exposition of the science of biology that individual efforts ever accomplished. In the lives of Harvey, Jenner, Bell, Marshall Hall, and others, we recognise the same spirit of industry, the same noble example—the warriors of medical science. Let me congratulate you, gentlemen, on the selection of a school no less than on the choice of a profession. I need not place before you in review the history of this institution. Like all others of its kind, its work has been slowly—too slowly, I fear—progressive. The reforms, however, of recent times have multiplied its teaching resources and appliances to a degree which renders it (and I speak on the authority of Continental teachers) one of the most com-

plete veterinary schools in Europe. I tell you this in no spirit of prejudice or vainglory, but in a spirit of honest pride, without which I should be an unworthy representative of our profession, and of the school to which it owes so much. No; to kindred institutions we hold out the hand of fellowship, and while in our common weal we rival them in excellence, we admire and honour their struggles and successes. Those of you who can reproduce in your minds the days of Coleman, and glance back over the whole retrospect, comparing the present with the past, must needs exclaim, What changes, what improvements, what hopes of progress, since that time when the whole range of the art and science of veterinary medicine claimed but one exponent—when the principles of medicine were unknown in our midst, and the dogmas of tradition and authority usurped the place of science!

"I have suggested to you how complete is the school you have chosen at which to equip yourselves for the battle of life. Let me now place before you the means for carrying out this purpose. We offer you an infirmary containing over one hundred patients, embracing horses, cattle, sheep, dogs, and other domesticated animals; and among them will be found cases as interesting as they are varied. To meet the requirements of recent reforms in the curriculum of the school and the general course of education, an additional large lecture theatre has been added to the institution, making now three in all. This course has been adopted, wisely I think, for the purpose of facilitating the teaching department and economising the time at your disposal. Moreover, we offer you a large well-appointed museum, rich in specimens illustrative of healthy and morbid anatomy, parasitology, and botany; also a dissecting-room, a *post-mortem* house, a chemical, pharmaceutical, and I hope shortly will be added a physiological laboratory. With means so comprehensive, and a teaching-staff of large experience and repute, anxious to uphold the honour and welfare of our *alma mater*, the success of your mission here must be the measure of your industry, against which there can be no appeal. The governing body of this institution have been no less munificent in providing for your comfort than your education. To this end a new reading-room has just been completed; and in the name of you all I ask that that may shortly be supplemented by a library worthy of the school and the profession. The liberality which is at all times displayed by the governors of the College in the administration of their trust, and the solicitude evinced by them in your behalf, encourages me to hope that this request will not be made in vain. With a plentitude of means such as I have described, it now remains for me to point out to you the manner and importance of their application. But before I do so, let me briefly indicate the immensity of the task you have undertaken, and the spirit and mental qualities which must be brought to bear ere the goal of your ambition is reached. You have entered upon the study of the most comprehensive of that group which compose the circle of Science's medicine. I say the most comprehensive, because its foundation is based on the laws of life; and how vast, how limitless, in magnitude and extent, are the influences which concur to make up that grand, that exquisite system of vital order! As compared with theology and law, the study of medicine rises like a giant. Wresting authority from the organic and inorganic world alike, it spreads, and pushes its searching arms into the most secret recesses of Nature, and exhumes her buried treasures for the succour and preservation of beasts no less than man. It is not the mere contemplation of animals themselves, nor of the parts within them, nor of their habits, nor the houses in which they abide, that makes up the sum of a sound medical education. The lines of inquiry extend far beyond these. Indeed, the study of medicine is a survey of Nature, confined to no clime, limited to no species, and comprehending the ever-varying circumstances and conditions affecting the outer world. To

aid, therefore, the accomplishment of her objects requires the highest culture.

"The history of medical education as applied to veterinary science is a sad one, and when viewed by the light of progress in general science it stands alone in its limping hesitancy and subdued indifference, an object of remorse. While all that relates to medicine has continued during the past twenty years to move apace, tending to develope and consolidate a rational curative and preventive system, the principles inculcated have been disregarded by our profession, and by some even covertly condemned. A new era, I am proud to say, dawns to-day. The students of 1877 commence their studies under auspices which have known no parallel in the annals of our *alma mater*, and the education scheme applicable to prospective pupils fills us with hope that the days of empiricism and mechanical horse-doctoring are doomed to oblivion. The standard of general education, as prescribed for the present and now contemplated for the future, is a sign of the times. It suggests an awakening to the calls and demands of a growing intelligence which pervades all classes of society, from the cottage to the palace. Much as I delight in and welcome these changes, I cannot but regard any scheme which aims at a medical education as defective that does not comprehend an elementary knowledge of physics and both the Greek and Latin classics. Without the former every process of life must appear to you as through smoked glass, and without the latter medical terminology has no value, and can only be made available at the cost of much time both to yourself and teacher.

"It has been said, and with all the force of reason, 'If the lecturer does not communicate much of that knowledge which he endeavours to explain, it is not to be attributed either to his want of skill or to the insufficiency of his apparatus, but to the novelty of the terms he is obliged to use. Ignorance of the language in which any science is taught is an insuperable bar to its being suddenly acquired; besides a precise knowledge of the meaning of terms, we must have an instantaneous idea excited in our minds whenever they are repeated, and as this can be acquired only by practice, it is impossible that philosophical lectures can be of much service to those who are not familiarly acquainted with the technical language in which they are delivered.' Again, nothing can be more obvious than the vast influence which natural philosophy has exercised in promoting the march of medicine. By the light of its laws we comprehend the nature of those forces which operate in and upon the organic world. The principles of mechanics, hydraulics, optics, and acoustics, find expression in the movements of the body, the action of the heart, and the senses of sight and hearing. Gentlemen, I might still further urge the claims of physics as a part of your education, by pointing out to you the medical aspect of heat, light, and electricity. The importance of these several branches of natural science as parts of the domain of medicine cannot be over-estimated, either in regard to results already obtained, or in the promise of their extended application. By means of the clinical thermometer we are enabled to gauge the temperature of the body, to measure the extent of tissue change, and to diagnose the presence and progress of disease. The value of this method of inquiry to us who have to deal with dumb animals, and who have to rely exclusively on objective phenomena for our guidance, is inestimable: the more so because it affords definite results, and announces the initial stage of disease when all else besides is silent. Moreover, the ophthalmoscope and the microscope, to which the science of optics especially applies, are among the most interesting aids to diagnoses and prognoses; while electricity, though so subtle in its nature, bids fair to rival the most dominant of curative means. Since the introduction of the ophthalmoscope a luminous reflex from the

interior of the eye is an accomplished fact, and the old dogma that attributed to the choroid such a voracity for light has succumbed to experimental inquiry. The visual organs, therefore, no longer remain inscrutable corners in the animal frame, but, like others formerly hidden from view, their inmost recesses are now laid bare to us by the application of physical science. How much more has been revealed and brought within the sphere of medicine by that extended vision which the modern microscope affords, I need not tell.

"Sufficient has been said, I hope, to assure you that physics, as a part of the education of the student of veterinary medicine, cannot long be disregarded. I might almost go so far as to say, must at once be insisted on, unless we are contented to return to that state of professional littleness and empiricism from which we are now emerging. The preliminary or general education of the veterinary student is an important and pressing question. It strikes at the root of all future advancement, and whoever consummates the innovation which shall ensure to future students a foundation of scientific knowledge at the outset of their medical career will have deserved the thanks and congratulations of the profession, the public, and the state. But it is my province to-day to introduce you to those studies which, during the next two years and a half, will require your undivided attention. In doing so, my earnest desire is not only to indicate their nature and importance, but at the same time to mark out for you the best and surest mode of pursuing them. The limited time at your disposal for the accomplishment of your purpose will necessitate the closest observance of method in your scientific work, and the cultivation of those habits of thought which so largely conduce to success in training the mind to a sphere of usefulness. Let it not be forgotten that the application of veterinary medicine encompasses a large area. It deals, not with an individual animal whose habits and conditions of life are those of our own, and with whom we have common sympathies, associations, and means of verbal interrogation and intercourse, but embraces the whole of our domesticated creatures—and these are as varied in their structure as they are diverse in their ways and mode of living. If, therefore, we are exempted from the abstruseness and perversity of psychological medicine, we have, nevertheless, a wide and varied field for the exercise of our powers of thought, and one worthy of all our energies. Inasmuch as it is with Nature you are about to deal, the first lesson you will require to learn pertains to her and her ways. How life is sustained and influenced by the outer world should be the aim of your highest endeavours to comprehend. It is here, in your early acquaintance with or disregard of the laws of life, that success or failure will wait upon you.

"In searching after phenomena of health or disease, every sense will at one time or another require to be brought into play; and what the eye sees, or the ear hears, or the fingers feel, to be of value must leave a fixed idea in the mind, ready to be called up for comparison or association whenever occasion requires. It is this grafting of objects in the mind that constitutes true learning, and marks out the student of nature from the mere man of knowledge. 'Knowledge and wisdom, far from being one, have ofttimes no connection. Knowledge dwells in heads replete with thoughts of other men; wisdom in minds attentive to their own.' Do not rely on first impressions, nor on primary inferences, be your powers of perception ever so keen and clear. Let all your observations and conclusions be reviewed and tested by repeated appeals to the source from whence they come. If you follow this method honestly and with such liberality as the spirit of science demands, you will find how much which to-day you regard as true you will require to cancel to-morrow, and how much more you will need to correct as time passes on and experience grows. Disheartening though it may seem, and tricky as may

appear the enterprise of medicine, depend upon it success can only be reached by the bold hand that blots out errors and by a continuous assault wrests from Nature her sublime and simple truths. Let me caution you against the seductive influence of novelty—the tendency of the mind to disregard plain elementary facts, and to struggle untrained with indefinite and complex phenomena. Nothing in the wide expanse of medicine is so mean that the spirit of science may not stoop to possess it. Indeed, it is this humility, this regard for what some persons eschew as trifling and contemptible, that distinguishes the scientist from the mere pretender.

> " 'Think nought a trifle, though it small appear :
> Small sands the mountain, moments make the year.'

"To the former the simplest acts of life are indispensable in the interpretation of biological laws, and the development of medicine as a scientific pursuit. If, then, the studies to which it is my duty to introduce you are to bear fruit worthy of the cause you espouse, every fact, however simple and mean it may seem, must be noted, and the time awaited when you will be able to assess it at its proper technical value. Strive to become what Shakspeare termed

> " 'A snapper up of unconsidered trifles.'

"No amount of observation, however abstractedly considered, will give you the powers of the physician or the dexterity of the surgeon. Regarded alone, it is as seed cast in stony places, or light in the path of the blind. Only when associated with careful reflection and induction can it contribute to the productive faculty of the mind, and thus enlarge your view of Nature's works and ways.

"All of you by this time will have made yourselves familiar with the subjects comprised in our curriculum ; and many, I doubt not, have contemplated them with strange forebodings as they now appear in their seeming disconnectedness. But let me assure you that where honesty of purpose exists there is no reason for misgiving. Difficulties, however great they be, will, in time, yield, and ultimately vanish, before a steady and persistent application ; and that which to-day wears the garb of incoherence and obscurity will to-morrow appear bound by the closest relations, and illumined in all its parts. Anatomy, physiology, and chemistry, are proverbially the basis of the art and science of medicine—the tripod on which this conservative faculty reposes. In conformity with systematic teaching, however, your attention will be first directed to anatomy, chemistry, materia medica, and botany. Now, anatomy is that science which comprehends a knowledge of parts entering into the formation of organized structures. It embraces, therefore, not only the animal, but likewise the vegetable kingdom. In your botanical studies you will be called upon to consider it in this latter connection, and your teacher will then point out to you the technical and general importance which belongs to the structure of plants. It is more especially in regard to the former section that I desire to offer a few general remarks. And, first of all, in respect to the means wherewith a knowledge of this branch of your studies is to be acquired.

"Reading, lectures, and dissections, are the sources from whence your information on this head must be derived ; but let it be clearly understood that, while each of these several methods of obtaining knowledge are indispensable to success, their *individual* importance admits of no comparison. Anatomy is essentially a science of observation, a record of facts, and in itself devoid of all speculative thought. It is when we contemplate it in connection with physiology and medicine that it becomes a subject of reflection, and taxes the powers of the mind. Valuable as may be the

printed page and the timely utterances of your teachers as educational factors, let me impress upon you, with all the earnestness I can invoke, the paramount importance and value of well-executed dissections. If you would become real anatomists, and enjoy the high attributes of the physician and the skill of the surgeon, it is to the subjects themselves, whose ailments you purpose to cure, that your attention must be devoted. No description of parts, however complete and lucid, which your books and teachers can convey, will enable you to secure an artery, to expose a nerve, or to reduce a dislocation. Nor are woodcuts, diagrams, and pictorial illustrations, in regard to teaching, more than means of convenience. Let the light and shade in the one be executed ever so well, and the depth and delicacy of colour in the other ever so truly; let the outline be ever so clear and perfect, and the component parts stand out in the boldest relief that art can give,—they are then mere fictions of anatomy. Do not let it be thought that I underrate the value of such means; and if I have placed them before you with more force than truth, it is that you shall not err, that your anatomy shall not be verbal and shadowy, but sound and substantial. Dissection, gentlemen—methodical, searching dissection—is the only key to this branch of your studies; and in pursuing it, remember that a mere knowledge of the existence of parts does not constitute anatomy, nor is it sufficient to know the attachments of muscles, the course of nerves, and the divisions of vessels. Your observations must go far beyond this. Every particular relating to every organ and part of organs must be registered in your mind—size, form, colour, position, course, and surroundings—so that the species on which you operate may stand before you in life a transparent organism. The aims of anatomy are of the highest and widest description. It affords us a knowledge of the normal condition of tissues, and enables us to recognise the existence of changes wrought by disease. In its medical aspect it stands as the foundation of physical diagnosis; while in regard to surgery it guides the hand, controls the knife, and regulates the application of those extended means, those instruments of precision, which inventive genius has contributed to the relief of suffering and the preservation of life. Moreover, it introduces us to that important and comprehensive sphere of investigation which constitutes the science of physiology. In turning to this division of your studies, you are led from the simple recording of facts to a science of observation and experiment, and one in which your powers of reflection and interpretation of natural phenomena will be taxed to their utmost limits. The structures disclosed to you by the operation of dissection will naturally excite in your minds a desire to understand the purpose for which they are intended. This investigation of the action of parts, and of the influences which sustain and govern them, constitutes the science of physiology. By the light which it affords we comprehend those complex processes which make up the sum of life and the relations of the outer world to living beings. Physiology will explain to you how the crude materials of food become the life-sustaining blood, and how the latter ministers to the growth, development, and repair of the ever-wasting body. Many simple acts of life with which you are all familiar will be placed before you as important physiological truths. The mastication of food, in which we all so much delight, is not the less important on account of its simplicity. I mention this in order that you may not be impressed with the idea that physiology is altogether a parcel of inexplicable mysteries. It is true that instruments of the most elaborate and delicate description are absolutely necessary to the elucidation of many important facts. Nevertheless valuable, however, are the more accessible phenomena, in presenting to us a clear insight into the actions of life and their connection with disease. The aims of physiology, like those of anatomy, are high and wide, and appeal no less to the surgeon than the physician. The success of the former in the

exercise of his calling does not depend alone on his manual skill, or the precision and certainty of his sections, or on the method of readjusting broken parts.

"Other considerations involving a knowledge of physiology contribute in no slight degree to the favour of results. Before the knife is used the part diseased must be viewed, not only in itself, but in its functional relations to others both immediate and remote. The surgeon is assured, by his knowledge of physiology, that the extirpation of a gland on one side of the body will be followed by a compensating enlargement and functional activity of that on the opposite side, and that the balance of life will thus be preserved. He knows likewise that to divide the nerves of a part, as of the foot in Navicular Caries, will afford instant relief. In formidable operations he calculates the chances of success by a searching examination into all the functions of life, and he ministers to the ultimate good result by watching the indications of disease and favouring the obligations of nature. As an aid to diagnosis, it sustains the surgeon and the physician alike. It is, however, more especially in the hands of the latter that the extent of its application is displayed. All those small ailments of which we see so much, and which arise out of disturbed function, are identified and dealt with by us through the light of physiology. So do we predict and recognise the complications and results in which they culminate. Thus it is that in Pulmonary Emphysema we anticipate functional disturbance of the heart, and finally structural disease; while in certain obstructive cardiac affections we look with expectancy towards functional and anatomical changes in reference to the liver. The science of chemistry opens up to you a vast and important field of inquiry, and, being a truly experimental science, should awaken in you a large and active interest. The results which it affords are striking in their accuracy, and on this account its application to medicine should receive your closest attention. Just as a knowledge of anatomy can only be acquired in the dissecting room, so the realities of chemistry must be sought in the laboratory. Gentlemen, the study of chemistry commends itself to you, not only in its relation to physic, but as a means of training the mind to scientific method, and enlarging your sphere and powers of thought. Nothing, I venture to assert, in our curriculum affords you such advantages in this regard. As applied to medicine it enables you to determine the composition of food and the changes which it undergoes in the process of digestion. It explains to you the mode by which medicines act as remedial agents, it defines to you the composition of the tissues and secretions of the body in health and disease, and it aids in maintaining the conditions under which the former may be preserved and life prolonged. From the dissecting room and the chemical and physiological laboratories you will proceed to the wards of the hospital. Here the knowledge which you have obtained will be required to elucidate the nature, causes, and signs of disease, and the means of cure. Thence you will turn your attention to the dead-house, and familiarise yourselves with the causes of death. Most reluctantly do I leave these subjects, clinical study and morbid anatomy, unconsidered; but I should exhaust your patience were I to pursue them, and I feel that the duty I have undertaken to discharge would be sacrificed were I not to appeal to that moral sentiment which I am sure you all possess, and which in times past has done so much for the discipline, dignity, and honour of our school. I have pointed out to you the magnitude of the task before you, and I have endeavoured to show how science is to be won. Now, you have a perfect right to ask, What is the nature and amount of remuneration to be acquired for this generous outlay of money, time, and labour? I have the satisfaction to answer that everything calculated to make life happy is within your reach. If peerages and pensions do not fall to our lot, the golden road to honour

still remains open to you all. Let, then, your aims be high; and, failing to reach the goal of your ambition, you will surely attain an altitude of excellence, pride, and power. It you would be successful as students—and students you will always be—you must understand the value of time, the advantages of method, the force of will, and the influence of character. To appreciate the value of time you must use it, and on this head I would ask you to attend punctually on all your lectures and appointments: punctuality is not only a duty, but an element of politeness, and it is so considered by your teachers. Let every discourse receive your unbroken attention, and carry home the heads of lectures in your note-books, to transcribe and enlarge upon and digest at leisure. Do not encourage the idea that you will have any spare time: that is simply time cut to waste, and to waste time is the most unsatisfactory and expensive of privileges. Method is the soul of economy. An eminent divine remarked of it, that it 'is like packing things in a box,—a good packer will get in as much again as a bad one;' but apart from this consideration, it relieves you of that deep anxiety and fear which belongs to the careless performance of duties. 'Where there is a will there is a way.' Write this good old axiom on the flyleaf of every book you possess, and when resolution flags and failure threatens turn to it, and leave the rest to your self-respect. In your daily associations cultivate a generous and consistent spirit. With high-minded truthfulness seek the respect of those about you; and let dignity, honour, and usefulness be the highest aims of your life. Science will not then blush to own you as her sons, and as true gentlemen the ranks of our profession are open to you."

CONTAGIOUS PLEURO-PNEUMONIA OF CATTLE.

THE following report of a sub-committee, consisting of Dr. Hayden, Dr. Grimshaw, Dr. J. W. Moore, Dr. Harvey, Dr. Woodhouse, and the hon. officers, was adopted by the Executive Committee at the last meeting of the Dublin Sanitary Association, and ordered to be forwarded to the newspapers for publication:—

"In accordance with your instructions your sub-committee have prepared this report on the wholesomeness or otherwise of the flesh of oxen affected with Epidemic Pleuro-pneumonia.

"I.—HISTORY AND DISTRIBUTION OF THE DISEASE.—Epidemic Pleuro-pneumonia of cattle is supposed to have been prevalent in Hesse in 1603 (Valentine). It was described in 1769 by Bourgelat as occurring in Franche Comte, where it was called "Murie." Before 1789 it was limited to Switzerland, Jura, Dauphine, Vosges, Piedmont, and Upper Silesia. It appeared in Champagne and Bourbonnais between 1789 and the end of the last century. It prevailed in Prussia in 1802, whence it spread through Northern Germany. Subsequent outbreaks occurred in Belgium (in 1827), Holland (1833), Great Britain (1841), Sweden (1847), Denmark (1848), Finland (1850), Cape of Good Hope (1864), the United States (1854), Australia (1858), and New Zealand (1864). It is also to be met with in Asiatic Turkey and some portions of Austria.

"II.—CHARACTERS OF THE DISEASE.—It is a specific contagious disease, and very fatal, usually prevailing as an epizoötic or enzoötic. Fleming says:—

"'The exact nature of the malady, like that of Cattle Plague, is not perfectly known. Beyond the characteristics above enumerated, and the fact that it is a specific disease peculiar to cattle, we have little precise information. Though usually considered an inflammatory disease, one or two

authorities are yet in doubt as to its being in any way connected with inflammation. Endeavours have been made to identify it with Rubeola and other human disorders, but with indifferent success, as there is little analogy between it and any special affection peculiar to mankind. In its essence it is a malignant fever, allied to the general eruptive diseases, generated by and generating during its course a specific virus which, when inoculated in a healthy animal, produces local and general disturbance, though very rarely the peculiar lung and pleural changes characteristic of the natural disease.'*

"The above statement is made by one of the highest, if not the highest, authorities on veterinary medicine at present living; and we believe his work is the most recent one of authority upon the question. It is evident from Mr. Fleming's statement that he considers the contagious Pleuro-pneumonia of cattle to be of the nature of a malignant fever. From all the information we have at our disposal, our opinion accords with that of Mr. Fleming upon this point. Mr. Fleming, however, appears to us to be decidedly in error in believing that there is little analogy between it (Pleuro-pneumonia) and any special affection peculiar to mankind, as there is a very analogous disease which occurs epidemically, and which has been designated 'Pythogenic Pneumonia' by two members of this committee in a paper published some years ago in the *Dublin Journal of Medical Science.* In a work published in 1876 by Dr. Sturges, who may be fairly considered as the highest authority on Pneumonia as it affects human beings, he refers to the epidemic character of certain forms of Pneumonia, and he says, 'Pneumonia thus occupies a middle place between the specific fevers, so called, and the local inflammations, and has something in common with both.'

"This remark is quite applicable to the Pleuro-pneumonia of cattle, and explains the doubt referred to by Mr. Fleming in the above quotation. The promoting causes of the disease are those which usually favour epidemics or epizoötics of any kind, and may be generally included under the terms 'bad hygienic conditions,' but no specific cause has yet been assigned for the disease. The general opinion of veterinarians appears to be that in this part of the world, at least, Pleuro-pneumonia does not arise except through contagion; but, as is the case with all similar epidemic affections, many outbreaks have occurred without the possibility of tracing the origin of the contagion.

"III.—It is not necessary here to refer in detail to the medical history of the disease, or to describe its symptoms, progress, and termination. The progress of the disease has usually been divided into two stages, and this classification has been apparently accepted by veterinarians and some pathologists. This appears to us to be a very rough method of describing the disease. It is clear to us that the disease has, like contagious febrile diseases among human beings,—1st. A stage of fermentation, lasting from the time of reception of the poison to the first symptoms of development of the disease. 2nd. A stage of invasion, when the animal sickens and the first febrile symptoms appear. This stage seems to have been imperfectly studied by veterinarians, and no doubt there is more difficulty in recognising the symptoms of 'all-overishness,' as it is popularly called, among cattle than among human beings. The third stage is that of the complete development of the disease, when the acute lung symptoms are developed; and the fourth stage that during which the animal recovers or dies, as the case may be. Should the disease follow an unfavourable course, which it most frequently

* "A Manual of Veterinary Sanitary Science and Police." London: Chapman and Hall, 1875.

does, the lungs become infiltrated with pus, and give rise (in addition) to the fever known scientifically as Pyæmia, or Suppurative Fever, or 'Septic Fever,' but popularly known as 'Hectic Fever.' This latter condition arises in human beings, who are said in popular language to die of 'consumption after inflammation of the lungs.' The conditions are completely analogous.

"IV.—With regard to the contagiousness of the disease, it is universally admitted that it is communicable from an infected to a healthy beast, and that the communication may take place either by the proximity of the animals, or by means of articles which have been in contact with sources of infection. The *materies morbi* seems to reside chiefly in the discharges from the infected lungs, but it is also present in the cutaneous emanations, and probably in the secretions, air passages, and excretions, as well as in the blood (Fleming).

"There is not at present sufficient evidence to prove that the blood or secretions of diseased animals can communicate the disease; but, arguing from analogy, such is by no means impossible or improbable. Thus we find that Measles in human beings is less contagious than Scarlatina, but Measles is easily communicable by inoculation with diseased products, while Scarlatina is scarcely—if at all—communicable in this manner.

"The Pleuro-pneumonia of cattle is certainly difficult of communication by inoculation. Fleming says—

"'Inoculation in various parts of the body with lung serum certainly gives rise to local and general disturbance, often of a very serious character; but it does not, as a rule, bring about those alterations in the thoracic cavity which are looked upon as constituting the essence of the disease.'

"From the foregoing summary of the history and nature of Epidemic Pleuro-pneumonia, and from the information in our possession, we believe we are justified in drawing the following conclusions:—

"1st. That Epidemic Pleuro-pneumonia of oxen is a contagious febrile affection.

"2nd. That the pulmonary inflammation, although the most important, is only one of the phenomena of the disease.

"3rd. That the virus of the disease, being of the nature of that met with in contagious zymotic diseases, and being capable of communication by inoculation of the body, pervades more or less all parts of the animal's body.

"V. With regard to the pathological anatomy of the affected animals, it is found that in the so-called 'first stage' of the disease the lungs are extensively congested and infiltrated with yellow serum. As the disease advances, solid lymphy deposits take place, the pleuræ present signs of inflammation and effusion, and the pericardium is also affected in some instances. The pleura lining the chest wall is affected, but the cellular tissue lying beneath it is 'rarely affected,' according to Fleming. The butchers often strip off the diseased pleura with a view of exposing only the healthy sub-pleural tissue, and thus passing off the carcase as healthy; but (says Fleming) 'the artifice is readily detected by an expert.'

"The flesh is dark and harsh in appearance, the fat frequently 'yellow-tinged,' and there is an absence of blood generally. This description of the flesh is very different from the characters of good meat given by Professor J. Emerson Reynolds in the 'Manual of Public Health for Ireland,' p. 195.

"In the suppurative stages of the disease large quantities of pus and dead lung tissue are found in the chest. 'The stomach contains dry food, and its lining membrane, as well as that of the intestines, may exhibit patches of congestion or extravasation' (Fleming).

"It thus appears that all parts of the animal are more or less affected, and this fact has an important bearing upon the main object of this report—

namely, the suitability for food of the flesh of animals affected with Pleuro-pneumonia. In considering this question, it is necessary to refer to the various ways in which animal food may become unwholesome. These are well classified by Mr. Gamgee in a valuable report made by him to the Medical Officer of the Privy Council, and published in the fifth report of that officer, March 31st, 1863, as follows :—

"'(*a*) Cadaveric venom.

"'(*b*) Animal poisons known from their effects in inducing specific diseases.

"'(*c*) Organic poisons due to putrefaction.

"'(*d*) Mineral and vegetable poisons absorbed into the system.

"'(*e*) Parasites.'

"The first, cadaveric venom, is that which produces such serious results in those who suffer from wounds received in the dissection of human bodies. Exactly similar results follow wounds received in the cutting up of meat. The second class of injurious principles is that with which we have to deal in the present instance ; and the question arises, Does the flesh of an animal affected with Pleuro-pneumonia produce injurious results? and is there any evidence of such results ? or is there evidence that it may be eaten without producing injurious effects? It is quite certain that large quantities of meat derived from animals affected with Pleuro-pneumonia have been consumed without any evil results being recorded. We could give many examples of such negative evidence. It must, however, be remembered that the absence of ill effects rests on hearsay evidence, and that but little inquiry of a nature that may be termed scientific has been made upon the point. Dr. Mapother makes the very appropriate remark,—

"'It must not be supposed, from the rarity of well-proved cases, that the eating of flesh of diseased animals is safe, for it must be remembered that the fearful effects of meat infected with trichinæ were only lately discovered.'

"We might add that sewer gas, dirty water, and ground water were never thought of as noxious until 'discovered' to be so. It must also be noted that it is only deaths from disease, not causes of disease, which appear in public returns, as there is no registration of sickness. Mr. Gamgee quotes a remarkable instance where injurious effects did follow the use of meat which was derived from cattle suffering from lung disease, and states that in an establishment containing 1520 convicts forty or fifty cases of boils and carbuncles appeared each month. This is a remarkable piece of evidence, as it has been stated by those who favour the consumption of the flesh of pleuro-pneumonic cattle, that the relation between the prevalence of boils and carbuncles was founded upon the error of confounding the 'Malignant Pustule' with Pleuro-pneumonia. It does not seem likely that Mr. Gamgee could make such a mistake. The fact that the mortality from Anthrax among men does not rise with the increased prevalence of Pleuro-pneumonia among cattle has been relied upon as an argument by the same persons. This argument, however, is quite fallacious, as Anthrax is not a very fatal disease, and, therefore, does not appreciably affect the death returns. What is more to the point is the fact that Anthrax and boils have prevailed to an unusual extent recently among men, at a time when Pleuro-pneumonia is particularly prevalent among cattle. In the absence of a registration of disease it is quite impossible to compare accurately the prevalence of Pleuro-pneumonia with that of any disease which does not materially affect the death returns. A careful examination of all available sources of information appears to show that the evidence of the fitness or unfitness of the flesh of pleuro-pneumonic cattle for human food is almost wholly of a negative character—the only positive evidence of injuriousness being that already quoted upon Mr. Gamgee's authority.

"Considering the question from a more general point of view, it is clear from the evidence before us that the flesh of pleuro-pneumonic cattle, although not presenting appearances specially characteristic of this particular disease, does present, except at the earlier stages, those characters known as febrile, or feverish flesh, when the meat loses its natural colour, odour, elasticity, and reaction. The flesh in the early stages of the disease is undistinguishable from that of healthy animals. It has not yet been ascertained exactly at what period of the disease the flesh begins to exhibit this febrile condition. As flesh with the febrile appearances would never be purchased by any one acquainted with the character of wholesome meat, and as such flesh is particularly prone to decomposition, we have no hesitation in condemning it as unfit for human food. We have, lastly, to consider the relations which 'organic poisons due to putrefaction' may have to the unwholesomeness of pleuro-pneumonic meat. It is admitted on all hands that 'feverish' meat is more prone to decomposition than that presenting healthy characters. It is well known that putrid meat is dangerous to health, and that although, when well cooked and partly disinfected by salt and other condiments, it may be eaten by persons habituated to it without ill effects, yet that it is prone to produce diarrhœa, vomiting, and other symptoms of gastro-intestinal irritation.

"Many deaths have been caused by the consumption of putrid meat, and many more serious illnesses have been caused thereby. Even the advocates of the consumption of pleuro-pneumonic flesh have admitted its proneness to decomposition, and suggested its 'sale at a reduced price,' and that, in order to diminish the risk of putrefaction, it is right 'to exercise greater care than ordinary in bleeding the animal.' Thus it is admitted that putrid meat is dangerous, and that meat from pleuro-pneumonic cattle is prone to become putrid, and, therefore, more likely to become dangerous than the flesh of healthy animals.

"We consider that, when flesh requires special precautions to prevent its becoming unwholesome, such flesh should not be permitted to be used for human food. The proposal to sell it at a reduced price means supplying it to the poor, needy, and hard-working, where its injurious effects are less likely to be heard of, and where the means—such as cooking and seasoning—likely to counteract its bad effects are less likely to be employed.

"With reference to the milk of diseased animals, there is no better evidence of its injurious or innoxious effects than there is with regard to the flesh. The most that can be said is that no one has complained; but the evidence is altogether of a hearsay character. We know that putrid milk is but too common, and we know that it produces dangerous diarrhœa in infants; and it may be that milk, like flesh of diseased animals, quickly becomes putrid, and thus dangerous.

"Our conclusions are as follows:—

"1. That Epidemic Pleuro-pneumonia is a specific contagious fever, and therefore affects the whole system of the animal, including its flesh and milk.

"2. That the flesh of animals affected with the disease, except in the earliest stages, is known to present unhealthy appearances.

"3. That the flesh is specially prone to become putrid, and therefore dangerous as an article of food.

"4. That it is not known with certainty at what stage of the disease the flesh first shows signs of infection.

"5. That there is no evidence of a scientific character to prove that the flesh of oxen affected with the disease has not produced injurious effects.

"6. That there is some evidence to show that the flesh when eaten has produced injurious results.

"7. That the proposal to sell the flesh at a reduced price, and to make it

less prone to putrefaction by careful bleeding, is, if carried out, calculated seriously to endanger the health of the consumers, especially the poor, and to leave a loophole for the sale of all kinds of diseased flesh.

"We are therefore of opinion that the flesh of animals which have suffered from Pleuro-pneumonia in any stage should not, under any circumstances, be permitted to be sold for human food."

STUBBS' "ANATOMY OF THE HORSE."

THE grandly engraved folio plates which illustrate the anatomy of the horse, and which, produced by Stubbs in the middle of the last century, are even now unequalled for fidelity in detail and correct drawing, derive much additional interest from a well-written notice of the artist which was published in the *Temple Bar* magazine for December last.

The veterinary profession, no less than painters and engravers, owe a large debt of gratitude to George Stubbs; for his "Anatomy of the Horse" gave a marked impetus to the study of this animal, from a surgical and pathological, no less than from an artistic, point of view. It is a monument of skill, patience, and talent; and those who are the fortunate possessors of a copy of the magnificent work (now becoming rare) will be inclined to place all the more value upon it when they learn something of the man who produced it—and whose highest fame will assuredly rest upon it—and the circumstances under which it saw the light.

Mr. Stubbs, it appears, was born at Liverpool on August 24th, 1724; his father was a "considerable currier and leather-dresser"; and at an early age the child evinced the genius of a painter. When scarcely eight years old, he began to study anatomy, a neighbouring doctor lending him bones and prepared subjects, from which he took drawings. The father, however, wished him to follow his own calling, and the lad appears to have done so until he was fifteen years of age, when events led to a departure from this course, and young Stubbs was engaged to an artist of repute in Liverpool. For some time he devoted himself to assisting in copying the pictures at Knowsley Hall, the Earl of Derby's seat, receiving instruction and one shilling a day for pocket money. A quarrel with Mr. Winstanley, the artist, however, brought this engagement to an end, and instead of copying paintings, Master Stubbs devoted himself to the study of nature, and remained at Liverpool until he was twenty years of age. Then he removed to Wigan, and afterwards to Leeds, where he worked at portrait painting.

From Leeds he went to York for the purpose of executing some commissions; and here he began a regular course of anatomy—dissecting human and animal subjects. Mr. Charles Atkinson, a surgeon of the town, procured him his first body for dissection; and such progress did the artist make, that he was soon employed in giving anatomical lectures privately to the pupils of the hospital. Here also he made his first essay in engraving—though under most unfavourable circumstances: a "man-midwife" of York being desirous of obtaining illustrations for a professional work, the body of a woman who had died in child-birth was "snatched" by Stubbs' pupils, and drawings having been made, they had to be engraved. This was quite a novel venture to the artist; but after much experimenting and borrowing of gravers the plates were completed, and pleased the doctor; for with all their imperfections they were anatomically correct, and gave a good idea of the parts intended to be represented. The work, by Dr. Burton, appeared in 1751. Stubbs removed to Hull, where he painted portraits and dissected assiduously, and then went to Italy in 1754; soon returning to Liverpool, he here achieved

what was apparently his first success—the portrait of a grey mare belonging to himself. In 1756, being then thirty-two years of age, he finally deserted Liverpool, and his first halting-place appears to have been in Lincolnshire, where Lady Nelthorpe had long before given him commissions for a series of portraits. Two years afterwards we find him at a farmhouse near Horkstow, in that county, energetically preparing for his great work on the "Anatomy of the Horse." The house appears to have been lonely, for we are told that he engaged it to avoid inconveniencing neighbours by his dissections. Here Stubbs worked for eighteen months, with one companion only—his niece, Miss Spencer, who was born near the painter's house in Liverpool, and from the first had shown great interest in his studies. The work thus laboriously carried through had long been present in Stubbs' mind; and there are some interesting details of the manner in which it was conducted in the farmhouse by Horkstow. Stubbs tells us that he fixed a bar of iron in the ceiling of his *atelier*. It was suspended by a "teagle," and hooks of various size and length were fixed to it; under this bar swung a plank, about eighteen inches wide, on which to rest the horse's feet. The body was suspended on the bar by the hooks, which Stubbs fixed in the ribs, and under the backbone, upon the further side of the animal. The horse was thus set in the attitude which the plates in his *magnum opus* represent; and the carcase so remained for six or seven weeks, until no longer endurable. Like many other dissectors, Stubbs appears to have been indifferent to the odour of putridity, and even unconscious of it.

It would seem that Stubbs had not, at first, any notion of carrying out this great labour at his own expense and single-handed. The idea of it had been broached among the anatomical students at York, and the artist expected aid from some of them. But they all failed in their engagements, and Stubbs then resolved to bring his enterprise through without help from any one. Eighteen months of industry sufficed, and he took his drawings complete to London, where he hoped to find an engraver for them, in either 1758 or 1759.

But the celebrated engravers of the day declined this commission—not, apparently, without scorn. Many of the drawings represented entire figures, but others there were showing parts only—a nose, an ear, a leg—and for such work Mr. Grignion, Mr. Pond, and their fellows, had neither habit nor liking. This unanimous refusal obliged the artist to do his own engraving once more, and he set about the task with characteristic resolution. What great success he had is well known; but the publication was necessarily retarded, for Stubbs never broke into the time devoted to his regular occupation of painting, and his etchings were made early in the morning, or after hours. Often he worked late into the night. In about six or seven years they were complete, and the "Anatomy of the Horse" appeared in 1766. "More than any other thing, the book tended to throw him into horse painting, and to this he ascribes entirely his being a horse painter."

Sir Joshua Reynolds gave one of his earliest commissions in this line, and the Duke of Richmond gave him an important commission. He settled in London, was made a Royal Academician, adopted enamel painting, undertook in 1790 to paint a series of the most famous horses of the day, and towards the end of his active life returned to those anatomical studies by success in which he had gained his fame. Nothing he produced in this direction, however, at all equalled his dissections of the horse. These procured him real and lasting renown, and one of his most enthusiastic admirers was the celebrated Petrus Camper, the Dutch naturalist and surgeon. The *Medical Review* of 1767 says of the "Anatomy": "This work not only reflects great honour on the author, but on the country in which it was produced. France may reap great credit from the Veterinarian School lately

established in that country ;* but what praise is not due to a private person who, at his own expense, and with the incredible labour and application of years, began, continued, and completed the admirable work before us ! The author himself dissected a great number of horses, for the sake of attaining that certainty and accuracy for which his engravings will ever be highly valued by the curious in comparative anatomy. His original drawings were all his own, and the plates were likewise engraved by his own hand. In short, we are at a loss whether most to admire the artist as a dissector or as a painter of animals."

The late Sir Edwin Landseer had the original drawings, which he valued highly, and consulted for his pictures.

Stubbs died in London on July 10th, 1806, and was buried in Marylebone Church. In his younger days his muscular strength was prodigious ; and we are told that he more than once carried a dead horse on his back up two or three flights of a narrow staircase to the dissecting room. He rose very early, ate little, and drank only water for the last forty years of his life.

Reviews.

A Text-Book of Veterinary Obstetrics : including the Diseases and Accidents incidental to Pregnancy and Parturition in the Domesticated Animals. By George Fleming, F.R.C.V.S., 2nd Life Guards. Parts III.—X. (*Second Notice.*)

In the November number of this Journal, I ventured to bring under the notice of the profession this book. Since that period, owing to the extraordinary industry and perseverance of its author, it has now nearly arrived at completion.

I hope the work has been read and studied ; for by this means only can its excellencies be recognised. The statement which I made on a former occasion—viz., that it would be a complete manual in all those divisions of anatomy, physiology, and pathology relating to the processes of generation, gestation, and parturition—is fully borne out ; and although the book is in advance of the profession in this country, and might, I think, have been judiciously curtailed, it is calculated to advance and promote the interests of veterinary science, as well as add to the reputation of its author.

In every one of its pages there is something to instruct, as well as assist, the veterinary surgeon in his important duties ; but to the veterinary student it is invaluable—containing, as it already does, a digest of all the opinions and practical suggestions of well-known writers on this subject, both at home and abroad.

The very great disadvantages under which the veterinary obstetrist labours, renders this work the more valuable. "Called upon too late, when the waters have escaped for a long period, and the neighbouring empiric has exhausted his science, aggravated a bad presentation, irritated the generative organs by manipulations, tractions, and violent means,"—then it is that the veterinary surgeon should exhibit his

* A reference to the establishment at Lyons of the first Veterinary School.

presence of mind, coolness, and fertility of resource; so as to take into consideration all the circumstances of the case, devise his method of procedure, and carry it out promptly.

For the young practitioner, just entering upon the duties of his profession, I would recommend Parts VII.—X. to his attentive consideration. He will there find many a precious hint—a copious and most valuable description of the various appliances by which unnatural presentations may be overcome, delivery effected, and diseases consequent on parturition prevented or cured.

During my professional career, I have witnessed a very large amount of cruelty carried on, and unnecessary pain inflicted, from the want of those appliances which are so judiciously suggested in this book, which will become more valued and esteemed as it becomes more extensively read.

THOS. WALTON MAYER, F.R.C.V.S.,
Professor of Veterinary Medicine at the Royal Agricultural College, Cirencester.

ON HORSE-BREAKING. By Robert Moreton, M.R.C.V.S. London: Longmans, Green, and Co., 1877.

It gives us unfeigned pleasure at all times to notice new candidates for literary fame among the members of the veterinary profession in this country, and to encourage and aid them, if necessary, so far as lies in our power. There is a boundless field to be cultivated in this direction by the literary aspirant, and in no other could more direct and signal service to our science and ourselves, and indirectly to the public, be conferred. The accusation brought against us so frequently during the last three-quarters of a century, that we are, as a body, ignorant and illiterate, though it is, especially in recent years, undeserved, can only be refuted by evidence to the contrary. This evidence is gradually accumulating; and when the profession shall have determined that the veterinary graduate must not only have undergone a thoroughly scientific training at the schools, but must also have received such an amount of general education as will qualify him to practise his calling with advantage to himself and the community, and maintain his proper position in society, then such a degrading reproach will no longer be launched against us. We heartily welcome Mr. Moreton as the latest, and not the least valuable, of our recent accessions to the ranks of the once-despised "writing men." His little book on "Horse-breaking" does him great honour, and his colleagues no discredit. The veterinary surgeon should be, above all things, a horseman—not a mere rider of horses or stableman, but a student of horse-nature and temperament, as well as of horse-management. The author has evidently made a special study of horse-breaking, which must stand him in good stead on many occasions in the practice of his profession; while the instruction he has, by this study, been able to impart to others in clear and concise terms, will, we hesitate not to say, prove invaluable to those who desire to see young horses humanely and profitably tutored to toil for our benefit and pleasure. Mr. Moreton, in pointing out the errors which have, from

time immemorial, held sway in horse-breaking, and which have been productive of bad mouths, tempers, and dangerous habits,—due to the bad management and ignorance of the grooms and breakers who have given the colts their elementary lessons in utility and submission to the will and pleasures of man,—indicates the rational principles which should prevail in training young horses, either to saddle or harness, and particularly with regard to paces. There are chapters on riding young horses to hounds, the different kinds of horses for special work, and on the cruelty and folly of overworking horses which have not attained maturity. From experience and educated observation, Mr. Moreton has every claim to be recognised as one of the highest authorities on the subject which he has so admirably dealt with; and we have no hesitation whatever in recommending his book to members of the profession who are interested in horse-breaking—and who of them is not?—as well as to gentlemen and others who value well-trained horses, and insist on humanity in training them.

HORSE WARRANTY: ON THE PURCHASE AND SALE OF HORSES, WITH HINTS AS TO METHODS OF PROCEDURE IN CASES OF DISPUTE. By F. H. Lascelles, LL.B. London: Reeves and Turner, 1877.

Since the publication of Oliphant's book on the law of warranty, nothing has been done to render the legal aspect of horse-selling or horse-buying more clear and explicit, or in a compendious form to guide buyers or purchasers to a better knowledge of the risks and chances relating to the rectification of bad bargains. Mr. Lascelles has done good service in giving us a summary of the law with regard to horse warranty, in the cheap and modest little work before us. His pages, he confesses, "are not intended for a law book, nor will they supply the place of business habits, or turn a careless deal or bargain into a satisfactory one;" but he hopes "they will show those who propose to buy or sell a horse some of the rules and safeguards to be adopted to avoid litigation if possible, or to ensure success if litigation must take place." From a careful perusal of the book, we are satisfied that it will be found most useful to veterinary surgeons, as well as those who have to buy or dispose of horses: indeed, some portions of the work are particularly valuable, especially those pertaining to the more technical legal questions. It is a pity the writer did not obtain the aid of some competent veterinary authority, when drawing up the chapter on the diseases and ailments of horses which legally constitute unsoundness; as this is the least satisfactory portion of the otherwise excellent handbook. With regard to our profession the author writes: "The veterinary art has very much improved of late years. Veterinary surgeons now know what they are talking about; but still, in rural parts, the ignorance respecting the real diseases of animals is great." He then goes on to say that "Many farriers are natural healers of animals, just as many doctors are natural healers of men; from practice and long watching, and a natural aptitude for the work, they effect marvellous cures, and yet would be unable to pass the most simple examination on the anatomy of any part

of a horse." No doubt the author is alluding to non-qualified men who have not studied veterinary medicine, as the term farrier is not applicable to graduates of the Royal College of Veterinary Surgeons.

Proceedings of Societies.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD OCTOBER 3RD, 1877.

Present—Major-General Sir F. Fitzwygram, Bart., President, in the chair; Professors Brown and Walley; Messrs. Batt, Blakeway, Broad, Cartwright, Collins, Cox, Cuthbert, Dray, Fleming, Greaves, Harpley, Moon, Smith, P. Taylor, and the Secretary.

The notice was read convening the meeting.

The minutes of last meeting were read and confirmed.

Letters were received from Professor Williams, Mr. Withers, and Mr. Reynolds, regretting their inability to attend the meeting.

A letter was received from Mr. Talbot, in which he begged to tender his resignation as a member of Council of the Royal College of Veterinary Surgeons.

On the motion of Mr. DRAY, seconded by Mr. MOON, the resignation was received and accepted.

Letters were also received from the Secretary of the Royal College of Surgeons, the College of Physicians, the Secretary of the Royal Veterinary College, the Secretary of the Pharmaceutical Society, and from Prof. Walley, acknowledging the receipt of a copy of the Register with thanks.

A letter from Mr. Hughes, of Swansea, asking if a Mr. Long of that place was a member of the Royal College of Veterinary Surgeons.

The Secretary having stated that no such name was on the Register, he was instructed to send a "disclaimer" for insertion in the local newspaper in which the name appeared in the Directory.

Report of House Committee.

The Secretary read the following report:—

A meeting of the House Committee was held on September 14th, to receive and make arrangements for the reception of the presentations made by William Field, Esq., to the library and museum of the Royal College of Veterinary Surgeons.

The Committee recommended that an estimate be obtained of the cost of a book-case, to be fitted up at once in the Board-room, for the reception of the books, etc.; and that shelves be prepared in the museum for the specimens. Also that all necessary repairs be effected, and the oil paintings framed.

The SECRETARY was directed to write to Mr. Field and acknowledge the receipt of his valuable presentations.

The SECRETARY reported the presentation by William Field, Esq., of books, specimens, etc., to the library and museum of the College. The books consist of 298 vols., written by the most eminent authors on veterinary and medical science. Also a valuable portfolio of engraved anatomical plates and water-colour drawings of various morbid specimens.

Among the presentations may be mentioned a framed glass containing the pedigree of the thorough-bred horse, four oil-coloured drawings of morbid specimens, and drawings of the foot of the horse from "Stubbs' Anatomy."

To the museum are presented three sets of electric, galvanic and chemical

apparatus, eighty-three glass spirit jars containing a vast variety of morbid and other specimens.

A plaster cast of the fore-extremity of a horse (a case of Farcy). Also that of a head with a large tumour on the anterior part of the submaxillary jaw; and a plaster cast of enlarged spleen. Under glass shades are the injected thoracic and abdominal viscera of a dog. Also that of the leg and foot of a horse.

A human skeleton, and the skeletons of several other animals and birds contained in glass cases. The preserved heads of a buffalo and ibex, and the antlers of a deer.

There are several ancient horses' bits, one a silver-mounted cheek bit, and a pair of ancient spurs; 17 sets of cupping apparatus, and 3 spirit lamps.

Also a vast variety of fractured and other morbid bones; 57 specimens of calculi; cases of modelled horse mouths and horseshoes, and a large number of specimens of ancient and modern horseshoes.

Mr. HARPLEY, on behalf of Mr. Field, said that that gentleman had very great pleasure in presenting the specimens of morbid disease and also the library, in which would be found some works that were almost unique. He was sure that the Council would do Mr. Field the honour of accepting them, and he hoped that it would be an incentive to others to make similar presentations.

Mr. FLEMING, in seconding the motion, said he had examined some of the specimens in the museum which belonged to Mr. Field, and he thought when the members had had time to look over them, they would entirely agree with him, that Mr. Field's gift was one of the best the College had ever received. Many of the books were of very great value: in fact, he could testify that some of them were not to be found in the Library of the British Museum. They were in first-rate preservation, the plates were very fine, and the pathological specimens in the museum were, many of them, entirely unique. He thought that the Royal College of Veterinary Surgeons should adopt some means, beyond the ordinary method, of testifying to Mr. Field the estimation in which they held his gift to the profession.

The PRESIDENT moved that a letter containing a vote of thanks be drawn up by Mr. Dray, Mr. Harpley, and Mr. Fleming. The motion was agreed to.

The SECRETARY announced the presentation by Mr. Fleming of Part 10 of his work on "Veterinary Obstetrics."

On the motion of Mr. Dray, seconded by Mr. P. Taylor, a vote of thanks was awarded to Mr. Fleming for his presentation.

The SECRETARY also intimated that Mr. Graham Mitchell, of Australia, had presented a work on the Cumberland Disease in sheep, and that specimens of the centipede, and also a Filaria oculi taken from the eye of a horse in India, had been presented by Mr. Merrick of the Royal Artillery.

On the motion of Mr. Fleming, seconded by Mr. Broad, a vote of thanks was passed to the donors.

A letter dated 21st July, from Dr. Dunsmure, was read, in which he stated that Dr. Dickson was desirous that Dr. Balfour should be appointed Examiner in Botany in Edinburgh and he in Glasgow, because, if there were several meetings of the Board in July in Edinburgh, he would find it inconvenient to attend them for fear of neglecting his class.

The PRESIDENT said he was averse to altering the composition of the Examination Board. Such a course would be contrary to the policy lately adopted by the Board, and, unless there was a strong necessity for any alteration, it should not be made.

Mr. TAYLOR having signified his concurrence in the views expressed by the President, the matter was allowed to drop.

Scotch Examinations.

At a meeting of the Scotch Section of the Court of Examiners held in Edinburgh on July 18th, 19th, and 20th, 42 students passed and 13 were rejected.

The Fitzwygram Prizes.

The report of the Fitzygram Competition having already appeared in the Veterinary Journals, the Secretary announced that Mr. Richard Glover, of the London Veterinary College, obtained the first prize of £50, and that Mr. Laurence Tipper, also of the same College, obtained the second prize. Mr. Glover expressed his regret at having been the cause of so much extra trouble, and was grateful for the consideration he received at the hands of the donor and the Examiners.

The SECRETARY stated that Prof. McCall was desirous of being informed as to the dates for fixing the Scotch Examinations, in order to comply with the new rules. A letter had also been received from Prof. Walley, wishing to be informed if rejected students under the new rules in July would be eligible to present themselves at Christmas. Both letters had been laid before the Council.

The PRESIDENT said that a motion bearing on the subject would be made at a subsequent stage of the proceedings.

The SECRETARY stated that there were eight candidates on the list for the Fellowship Degree examination, and that arrangements should be made not only for that, but also for the examinations at Christmas.

The PRESIDENT said that this matter also would be considered afterwards.

The SECRETARY stated that the Library Committee had to report that they had looked over the books, and found that there were several volumes that required to be repaired. An estimate had been obtained of the cost. One process was that of binding in half-calf, and the other that of roan. The cost would be £4 9*s.* in the former, and £3 9*s.* 6*d.* in the latter. The Committee recommended that, as there were a great many valuable books, those that required to be bound should be bound in half-calf, amounting to £4 9*s.*, with 6*s.* additional for repair to the portfolio.

Mr. DRAY moved that the books be bound in half-calf.

Mr. FLEMING seconded the motion, which was carried.

Mr. DRAY further moved that a catalogue be printed, and that each member of Council be furnished with a copy.

Mr. TAYLOR seconded the motion, which was also carried.

Some conversation then took place as to the framing and glazing of some oil paintings—when it was ultimately decided that the paintings be forthwith hung up, and that the question of framing should stand over.

The obituary notice was read.

The REGISTRAR reported that 122 Registers had been sold, and that Mr. Adlard had written to say that the estimate for reprinting 100 copies of Register would be £5 18*s.* ; and for £250, £9 14*s.*, exclusive of alterations.

Finance Committee.

The report stated that the vouchers and receipts for payments during the preceding quarter had been examined and found correct. The quarterly balance-sheet showed that the present liabilities amounted to £173 12*s.* 9*d.*, which the Committee recommended should be discharged.

There being some slight discrepancy in the accounts,

The PRESIDENT moved that they be referred to the Finance Committee, and brought forward at the next meeting.

Mr. DRAY seconded the motion, which was carried.

Cheques were ordered to be drawn for the current expenses.

College Fund.

The SECRETARY announced the receipt of £26 5*s.* from Messrs. P. Taylor and Son of Manchester.

In reply to the President,

The SECRETARY stated that £1390 17*s.* 1*d.* was invested in consols, and that there was at the bankers' £92 8*s.* 4*d.*, making a total of £1483 5*s.* 5*d.*, which, together with the £26 5*s* just received, amounted to £1509 10*s.* 5*d.*

The PRESIDENT moved, and Mr. DRAY seconded, that the whole of the balance be invested.

The motion was carried.

The Secretary's Salary.

Mr. DRAY, in calling attention to the reduction in the Secretary's salary, said he was only actuated by one motive, and that was a sense of justice. Mr. Coates had been Secretary for about sixteen years, and for many years he only received £100 per annum. A short time ago the Council thought it was too insignificant a sum, and raised the salary to £150 per annum, which he was well deserving of, because he considered that Mr. Coates had performed his duties in a very honourable and straightforward manner. In consequence, however, of the expenditure exceeding the receipts, the Finance Committee, under pressure, had reduced his salary by £20. At the last meeting but one this reduction was considered unfair, and it was altered to £10, which he proposed should be rescinded, and that the salary should continue to be £150 per annum. In this instance he considered that the rule of reward for long service and good conduct had been departed from. He also called attention to the fact that Mr. Coates also performed the duties of Registrar, which were distinct from those of Secretary, and for which he received no remuneration. He hoped that at some future time, when the funds of the Council would permit of it, the Finance Committee would suggest that, instead of the Secretary's salary being diminished, it should be augmented.

Mr. CUTHBERT, in seconding the motion, endorsed the opinions expressed by Mr. Dray.

Mr. GREAVES also bore testimony to the very able and satisfactory manner in which Mr. Coates had performed his duties. He was sure that the Council would be very much pleased to add to the salary if their financial position would admit of it; but he thought it was satisfactorily shown that at the time the alteration was made the Council could not afford to pay the amount, and it was in consequence of a sort of necessity that they were obliged to diminish it. If the finances of the Council were now such as could admit of it, he would have much pleasure in supporting the motion.

The PRESIDENT, after referring to the circumstances under which the reduction was made, said that the Council would no doubt be glad to assent to the reinstatement of Mr. Coates's salary; but he thought, in face of the report of the Committee, it would be unwise to make the increase until the end of the year; and if at that time the funds would admit of it, Mr. Coates's salary might not only be reinstated, but he might also be repaid what he had lost during the year. He had little doubt that, from the result of the examinations, the Council would at the end of the year be in a better financial position than they had hitherto been, and he therefore moved that the question be deferred to the end of the financial year.

Mr. HARPLEY, in seconding the motion, concurred in the observations made by the President, remarking that it would be impolitic in the Council to carry Mr. Dray's motion.

After some further conversation,

Mr. COATES said he acquiesced in the suggestion of the President. There-

upon Mr. Dray withdrew his motion, and the amendment proposed by the President was declared carried.

Alteration of Bye-law 50.

Mr. TAYLOR moved the alteration of the above bye-law respecting the election of Fellows. At present it ran as follows :—

"50. Each candidate other than a professor or ex-professor at a school affiliated with the Royal College of Veterinary Surgeons, will be required to produce a certificate of graduation in arts at a university to be recognised for this purpose by the Council, or a certificate of liberal education after an examination by the College of Preceptors under the direction and supervision of the Council."

As a practical veterinary surgeon, he felt that this bye-law had produced discord and dissension in the ranks of the profession, inasmuch as it did not carry an equal amount of justice to each one of its members. He did not see why the professors should be exempted from passing a preliminary examination if they had not already done so. They were looked up to as learned men ; but they ought to feel it a pleasure to pass a preliminary examination, if it was to be made the *sine quâ non* in the case of a practical man before he was examined for his degree of Fellowship. In his opinion this was unnecessary and unjust, and would injure the finances of the Fellowship degrees. He thought that at some future time a higher scale of examination should be adopted, and that it would be sufficient if the examiners would admit any person who came before them if he was recommended by three of his Fellows as regards his status in the profession. He therefore had great pleasure in asking the Council to expunge the bye-law, and to substitute one as follows :—

"A candidate for the degree of Fellow shall produce a good and satisfactory certificate signed by three Fellows as to his status in the profession, and as to his having been in practice not less than five years."

Mr. GREAVES, in seconding the motion, thought it would be more satisfactory to the profession at large if there were no such distinctive mark made between the general practitioner and the army veterinary surgeon, or rather the professors. It was fully admitted that the professors were educated men ; but it should also be admitted that many of the general practitioners were educated men. Let it be understood that a man who had his diploma and was recommended by three Fellows, had a guarantee that he was an excellent man and fit to become a Fellow.

Mr. FLEMING thought the question an important one. There had been no complaints on the part of the profession with regard to the bye-law, and he thought that, if it were abolished, one-half of the value of the Fellowship degree would be done away with. It should be borne in mind that the admission to the schools had hitherto been of a very unsatisfactory character. There had been no educational test until quite recently, and the present one was unsuitable to the age, and was rather a disgrace than otherwise. Until the Royal College or the schools themselves imposed a higher test than they did at present upon the intending student, it would be most unwise and injudicious to abolish the bye-law. A Fellow of the Royal College of Veterinary Surgeons should be a man of education, and he was sorry to say that there had not been hitherto any report as to the educational standard demanded from the students, and the public had no proof that they were an educated body. He thought the abolition of the bye-law, as things at present stood, would be fatal to the Fellowship degree. He therefore proposed, as an amendment, that the bye-law stand until such time as the Royal College took up the subject of preliminary education, or until the schools themselves imposed upon the

intending student such an examination as would convince the public that, if these men were made Fellows, they were educated as gentlemen.

Mr. HARPLEY, in seconding the amendment, said the bye-law was only taking effect, and it would be better to give it a longer trial.

Professor WALLEY thought that a rider should be added to Mr. Taylor's motion, to the effect that the examiners should have the power of rejecting a candidate whose papers showed that he was not up to the mark.

After some further conversation the amendment and motion were put to the meeting, when it was found that twelve voted for the amendment and four for the motion.

The amendment was therefore declared carried.

Mr. BLAKEWAY asked leave to postpone the motion of which he had given notice at the last meeting, to some future day.

The PRESIDENT said he intended to move to add to Bye-law 50, after the words "Veterinary Surgeon," "Any candidate other than a professor or ex-professor at a school affiliated with the Royal College of Veterinary Surgeons, will be required to produce a certificate of graduation in arts at a university to be recognised by this Council for this purpose," etc., "or gentlemen who have passed the Civil Service or Army Examination." He believed the object in making Bye-law 50 was wholly and entirely to secure that the person who obtained the honorary degree of Fellow should possess a liberal education. He believed the army examination had been for the last twenty years sufficiently stringent to insure a moderate amount of liberal education. Officers of the army had always possessed the degree of social status and liberal education which he thought might fairly entitle them to be Fellows of the Royal College of Veterinary Surgeons, and therefore he moved the addition of the words proposed.

Mr. BROAD seconded the motion.

Mr. COLLINS proposed as an amendment that army veterinary surgeons also should pass the preliminary examination in the same way as the civil practitioners, before presenting themselves for Fellowship examination, and that there should be no distinction between them.

Mr. TAYLOR seconded the motion.

Mr. FLEMING understood the President's motion to apply only to officers in the army, and who were not veterinary surgeons when they passed their examination. He was quite sure that those army veterinary surgeons who were desirous of obtaining the Fellowship degree would feel that they were being passed to it under false colours if they did not submit to the same ordeal as their brethren in civil life.

Mr. COLLINS said that the officers mentioned by Mr. Fleming had already passed a severe examination as to their general education, which the veterinary students did not.

The PRESIDENT said he was quite willing to take it as meaning the ordinary army examination. The motion would run as follows: "or gentlemen who have passed the Civil Service or the Army Examination held by the Civil Service Commissioners." This would not include veterinary surgeons.

The motion was put and carried.

In answer to Dr. Dunsmure's letter, previously referred to,

The Secretary was instructed to say that the Council thought it undesirable that the members of the Court of Examiners should be different at different places. It was opposed to the policy of the Council, who of late years had incurred very considerable expense in partially amalgamating the Examining Boards in England and Scotland.

Prof. McCall having written asking the Council to fix a time for the winter examination,

The PRESIDENT thought the best thing would be for the Secretary to write to the other two Scotch schools and ask them what time would be most convenient.

Candidates for the Fellowship Examination at Christmas.

The PRESIDENT said it would be most convenient to have the examinations after the usual examination, and therefore he should put the question whether the Council was willing to give the candidates for Fellowship an examination as soon as convenient after the usual winter examination.

This having been acceded to, the Secretary was instructed to write and say that there would be an examination.

The PRESIDENT gave notice that he would move the suspension of Bye-laws 32 and 33 for a period of three years, in order to enable gentlemen who have held the Highland and Agricultural Society's certificates for three years, to obtain the diploma of the Royal College of Veterinary Surgeons by passing the second and third examination at one and the same time on payment of full fees; and that gentlemen who have obtained their certificate more recently, but prior to December 31st, 1877, shall be required to pass all three examinations at one and the same time, on payment of full fees.

The Council then adjourned.

Jurisprudence.

A HORSE WARRANTY CASE.

AT the York County Court, recently, before Mr. E. R. Turner, judge, Mr. Chas. Hornsey, land surveyor, Railway Street, York, brought an action against Mr. Handley Taylor, farmer, Bog Hall farm, Dringhouses, to recover £19 13*s.* 3*d.*, damages for breach of a warranty of the soundness of a brown horse sold to him by defendant in March last. Mr. R. Dale appeared for the plaintiff, and Mr. A. Watson was for the defence.

Mr. Dale, in stating the case, said that on Tuesday, the 13th March, Mr. Taylor gave Mr. Hornsey the privilege of riding the horse in question to meet the York and Ainsty hounds, and as he was much pleased with it, he entered into some conversation with Mr. Taylor with a view to its purchase. Mr. Taylor asked £80 as the price, and on the plaintiff inquiring if the horse was sound, he replied that it was as sound as any horse in England. Mr. Hornsey observed the animal to blow heavily, which, however, went off in its being ridden, and on calling Mr. Taylor's attention to it, he repeated his former assertion, that the horse was as sound as any horse in England. No bargain was made on that day; but on the 27th of March Mr. Hornsey was again in the hunting field, when the horse was being ridden by Mr. Morgan, the late kennel huntsman of the York and Ainsty hunt. Some further conversation took place between Mr. Hornsey and Mr. Taylor, the former offering £75 for the animal, and ultimately agreeing to buy it for £80—the purchase money being paid to defendant on the following Saturday, he returning 10*s.* Mr. Hornsey not requiring the horse just then, it was arranged that Mr. Taylor should keep it for some time; but finding that he had to go to Melbourne to meet the hunt, he sent word to the defendant to deliver it on the following Monday, and on that day the horse was taken to the Pack Horse, Micklegate, and handed over to Mr. Hornsey. While at the public-house, the groom called Mr. Hornsey's attention to an enlargement of the horse's fore-knee, but of this he thought little or nothing, and started for

Melbourne. On arriving at Grimstone he observed that the horse stepped rather short, and that it showed signs of lameness, but he hunted it during the day, and returned home with it in the evening. On the following day he observed further signs of lameness, and therefore called in Mr. Bowman, V.S. He examined the horse, and found the near fore-foot bruised and cracked to the heel, and that the sensitive part was separated from the insensitive portion, these injuries causing lameness. It appeared that on March 27th, a few days previous, the horse had an overreach in the hunting field, which it was maintained was the cause of the cracked heel, and of which Mr. Taylor had failed to inform Mr. Hornsey. On ascertaining that the horse was lame, he communicated with the defendant, stating that he regretted to have to return it, but that he must do so for reasons stated by Mr. Bowman. The defendant took the horse back to Mr. Hornsey's premises in Holgate, and as he vouchsafed no answer to Mr. Hornsey, the horse was sold by Mr. T. Walker. It realised on the sale £65 2*s.*, which, together with the expenses incurred, left a deficiency on the amount of purchase money of the sum now claimed.

The plaintiff, on being examined, confirmed the above statement, adding that on the 27th March he saw the horse fall with Mr. Morgan in the hunting field, but when he purchased it he did not know that it had sustained any injury. In answer to Mr. Watson, plaintiff stated that he had frequently seen the horse in the hunting field, and he liked it very well. When he went to Melbourne to the hunt, they had about six miles' hard chasing, and he rode the horse during the day about twenty-five or twenty-six miles.

Richard Cooper, landlord of the Pack Horse, and Charles Skeller, ostler, spoke to observing a little enlargement of the horse's right fore-knee on its being brought to the stable.

Mr. Goddard Morgan, late kennel huntsman of the York and Ainsty hunt, stated that while riding the horse one day in March, in the hunting field, it fell with him from an overreach, and he afterwards observed a crack between the hair and hoof, near the coronet. He informed Mr. Taylor of the occurrence. In answer to Mr. Watson, witness said the horse went as well after the overreach as before.

Mr. John Bowman, Wheldrake, a veterinary surgeon of twenty-five years' standing, said that, on examining the horse, he found it lame in the near fore-foot from an injury. The insensible horn was torn away from the sensitive part of the foot. He also observed a crack from the top of the hoof down to the heel, about half an inch in length. The horse was very lame, and while standing in the stable it favoured its foot. In his opinion the lameness was in the foot, and the injury was such as might be caused by an overreach. There was a slight enlargement of the knee, but he considered this was of little consequence. He believed there was no unsoundness in the foot, but that the lameness was only temporary.

Mr. Watson, for the defence, submitted that there was no warranty whatever, and that if there was a warranty given, the horse was perfectly sound. It appeared that on the 13th March the parties had some casual conversation about the horse, but no bargain was made, the price being simply mentioned. From that time until the 27th March the horse was hunted regularly by Mr. Morgan, and on the day when the purchase was concluded, not a single word was said as to a warranty. Even supposing that on the 13th March the defendant had said in a casual way that the horse was sound—which he denied—there was no evidence to show that he reiterated it on the 27th, when the final bargain took place. Mr. Watson further contended that if there was any lameness it had been caused through the day's hunting at Melbourne.

The defendant, in examination, said that he was now the owner of the horse, having repurchased it. He at first asked the plaintiff £100 for it, and when he purchased it for £80 he never warranted it. When he delivered it at the Pack Horse there was no swelling at the knee. In answer to Mr. Dale, defendant said he believed the horse was perfectly sound. He was told by Morgan that he thought the horse had had an overreach, but he found no indication of it, there being only a little bit of skin off above the hoof. He had offered to take the horse back if a V.S. from a distance pronounced the horse to be lame from anything but a bang on the knee, which he thought Mr. Hornsey must have given him while hunting. In his opinion the swelling of the knee after the day's hunting at Melbourne was caused by a bang.

G. Hampshire, groom in the employment of Mr. Taylor, said that eight or ten weeks before the plaintiff purchased the horse it had a prick in the side of the knee, but it recovered in three days, and was then perfectly sound. Replying to Mr. Dale, witness said that on being told by Mr. Morgan that the horse had had an overreach, he and his master (the defendant) examined it, and he found a crack about as big as a thumb nail. The defendant pared off the loose shell, and ordered him to wash and keep the hoof clean, and he did so until it was delivered to the plaintiff.

Benjamin Barber, master blacksmith, Askham Bryan, and Benjamin Buckle, who is in his employment, and who had regularly shod the animal, stated that up to the 15th March, when it was last shod, it had no defects on the hoofs, and they noticed no swelling about the knees.

Mr. Geo. Hardy, V.S., said that he had examined the horse on the 14th April, and found no disease whatever on the near fore-foot, and nothing which, in his opinion, would cause it to go lame. He found an enlarged knee, the result of a bang, and there seemed to be a large amount of extravasated blood under the skin. There was a small crack on the hoof, which did not penetrate to the sensible portion as far as he could see, but he did not probe it. In his opinion the lameness proceeded from the knee and nothing else.

Mr. F. J. Day, York, gave similar evidence, and also gave it as his opinion that the lameness proceeded from the knee, the enlargement of which he thought was caused by a bang against a stake. There was a superficial bruise on the hoof of perhaps six or eight weeks' standing, and although this might cause temporary lameness at the time, it would recover in two or three days.

Mr. J. Cuthbert, V.S., Leeds, gave corroborative evidence; and this was the whole of the evidence.

His Honour then said he thought he was bound to give credence to the plaintiff's story as to the warranty, and it seemed to him that a sufficient warranty had been given. It had also been proved to his satisfaction, by the evidence of the two men from the Pack Horse, that the horse when brought there had a swelling at the knee, and Mr. Hornsey did not ride the horse above a mile and a half on the way to Melbourne before he found it going lame. He therefore considered that the warranty had been broken, and he should give a verdict for the plaintiff for the amount claimed, with costs.

THE DISINFECTING OF CATTLE TRUCKS.—IMPORTANT ACTION.

ON October 11th, at the Manchester County Court, before Mr. J. A. Russell, Q.C., Judge, the case of Moon *v.* Lancashire and Yorkshire Railway Company was heard.

This was an action brought to recover damages which were laid at £30, for injury sustained by some sheep in transit from Wakefield to Salford, owing, as it was alleged, to the negligence of the defendants' servants. Mr. L. Lewis was counsel for the plaintiff, and Mr. Jordan for the defendants.

The plaintiff, Mr. Joseph Moon, is a cattle dealer, residing in Eccles New Road, Salford; and on the 9th of May last he purchased 282 sheep at Wakefield cattle market. They were placed on trucks on the defendants' railway, about half-past three o'clock the same afternoon, and were then in a sound condition; but when they arrived at the Windsor Bridge cattle siding, Salford, between ten and eleven at night, the drover in charge of them found that many of the animals were severely injured. It appeared that the trucks in which the sheep were carried had been newly disinfected with a composition of lime and chloride of lime; and it was alleged by the plaintiff that the men who disinfected the trucks, instead of throwing the undissolved lime away, placed it on the floor of the truck. The weather was very wet, and the consequence was that the lime, not being properly slacked, got into the clefts of the hoofs of the sheep, so that their feet were severely burned. On the 16th of the same month a second consignment of sheep, also from Wakefield, suffered in a similar way, and the plaintiff was obliged to dispose of the animals at a loss.

The plaintiff and a number of witnesses were called, who gave evidence as to the loading of the sheep and the condition in which they were when they arrived at Salford. On each occasion when the sheep were conveyed the weather was wet.

For the defence, Mr. Jordan contended that the defendants were not liable. They were compelled, by an order in Council, to disinfect the trucks each time that cattle were placed in them, and they had complied with that order in the proper way; but what they said was that on the night when the plaintiff's sheep were carried it rained so heavily that the lime, which would otherwise have remained upon the sides of the trucks, was washed down, and so got into the hoofs of the sheep.

Two witnesses gave evidence as to the disinfecting of the trucks; and one of them, a man named Hulbert, said that he saw the lime washed down to the bottom of the trucks before the sheep were placed in them. He did not sweep the trucks out, but if the plaintiff's drover had complained, he should have changed the trucks. There was no more lime upon the floors than usual.

The Judge said the evidence of the witness Hulbert was conclusive of the fact that the injury might have been prevented, and that the trucks might have been swept out before the sheep were placed in them. That being so, he held that the trucks were in an improper state, and that the defendants were therefore liable. They would also have been liable as common carriers, because the sheep were delivered to them in a sound condition, and were unloaded in an unsound condition. Judgment was given for the plaintiff for the amount claimed.

Obituary.

We have received information of the death of Wilhelm Probstmayer, Director of the Central Veterinary School at Munich, and Government Veterinary Surgeon of Bavaria. This regretable event occurred on August 23rd, from a malignant disease of the tongue, which caused excruciating pain for a long time, and necessitated several severe operations. Probstmayer was born at Augsburg in 1823, his father being a member of the veterinary profession, and for some time one of the stud directors at Zweibrücken. Receiving his

general education at the St. Stephan Gymnasium, he subsequently studied veterinary medicine at the Munich school. Practising his profession for a short time at Homburg, he in 1846 entered the army, and saw active service during the Schleswig-Holstein campaign. Passing through the several grades of veterinary surgeon, he was finally appointed to the First Cuirassier regiment in Munich. During his army service he made an attentive study of pathological anatomy, and in 1863 published his "Etymologisches Wörterbuch der Veterinärmedicin." In 1867, he was made Director of the Munich Veterinary School, and in 1873 Government Veterinary Surgeon to the Minister of the Interior—both of which positions he held to the last, and with benefit to veterinary science and his country. His eminent services were acknowledged in various ways, but particularly in being decorated with the first-class Chevalier Cross of the Order of St. Michael, also the first class of Zähringer-Löwen Order. He was elected a correspondent of the Dorpat Veterinary Institute, and an Honorary Fellow of the St. Petersburg Veterinary Society, as well as a member of other learned bodies, and particularly of societies for the prevention of cruelty to animals.

Notes and News.

HYDROPHOBIA IN ENGLAND.—Hydrophobia caused the death of 47 persons during 1875; and the largest number of cases (16) occurred in Lancashire, while there were none at all in Kent. We have repeatedly drawn attention to the increase of Rabies among animals, and the corresponding prevalence of Hydrophobia in mankind in this country. The *Lancet* lays stress on this in the following remarks:—"It is an undoubted fact that Hydrophobia has been increasingly fatal in England in recent years. The annual death-rate from this disease to a million living, which, according to the Registrar-General's Reports, did not exceed 0·3 in the five years 1860-65, rose successively to 0·9 and 1·8 in the two succeeding quinquennials, and further increased to 2·0 in 1875, which is the latest year for which the returns are complete. In London six deaths from Hydrophobia were registered both in 1875 and 1876; and in the first twenty-nine weeks of this year, ending on Saturday, July 21st, nine had already been recorded, of which two (in St. Bartholomew's and Guy's Hospitals) occurred during the week ending July 21st. In New York a most stringent code of municipal regulations came into operation on the 1st of July, with a view to put a strong check upon the number of ownerless dogs, and thus to reduce to a minimum the chance of Hydrophobia mortality. Under these regulations any dog appearing in a public thoroughfare without a muzzle, and without a collar bearing the number of its license, is ordered to be seized and pounded, and not released without the payment of a fine; if such fine is not paid within a few days, the dog is to be destroyed. In many of our provincial towns regulations as to the efficient muzzling of dogs are both issued and enforced, while in London no attempts are made in this direction, and although a license is nominally necessary, the number of apparently ownerless dogs constantly to be seen in the streets suggests the improbability of their all being licensed. It seems to be nobody's business in London to protect us from the nuisance of vagrant dogs and the attendant danger from Hydrophobia."

VITALITY OF SEEDS.—The mines of Laurium, which gave rise recently to such lively diplomatic discussion, are generally known to be largely encumbered with scoriæ, proceeding from the working of the ancient Greeks, but containing enough of silon to repay extraction by the improved modern

methods. Professor Hendrich relates that under these scoriæ, for at least 1500 years, has slept the seed of a poppy of the genus *Glaucium.* After the refuse had been removed to the furnace, from the whole space which they had covered have sprung up and flowered the pretty yellow corollas of this flower, which was unknown to modern science, but described by Pliny and Dioscorides. This flower has disappeared for fifteen to twenty centuries, and its reproduction at this interval is a fact parallel to the fertility of the famous "mummy wheat."

AGRICULTURE IN AUSTRALASIA.—At the beginning of last year the number of sheep in Australasia was estimated at 63,845,719, or more than twice as many as in the mother country. Of these 24,000,000 were in New South Wales, 11,000,000 in Victoria, 6,000,000 in South Australia, 7,000,000 in Queensland, and 11,000,000 in New Zealand. The number of oxen at the same time was 6,884,525, nearly half of which belonged to New South Wales. The number of horses had increased to 935,252, of which New South Wales possessed one-third. The swine were estimated at 673,729, and were pretty equally distributed throughout the various provinces. The extent of land under cultivation in Australia was 3,480,294 acres, of which 451,138 were in New South Wales, 1,126,831 in Victoria, 1,444,586 in South Australia, 77,347 in Queensland, 332,824 in Tasmania, and 47,571 in Western Australia. Besides this, New Zealand possesses 2,377,402 acres of land agriculturally utilized, of which more than 1,770,000 acres are used as pasture.

EVIL EFFECTS OF DISEASED MEAT.—A very melancholy case of wholesale poisoning from the consumption of diseased meat is reported from Wurzen, a small town in Saxony. A local farmer, finding one of his recently-calved cows to be suffering from Puerperal Fever (not Puerperal Apoplexy), with accompanying abscesses and ulcers, beyond all hope of recovery, secured the services of two neighbouring butchers to slaughter the beast and dress the carcase, after which the trio managed to dispose of the meat, partly in the form of sausages, and partly as joints. Among those who partook of it no less than 206 cases of illness have occurred, and in seven instances such illness has terminated fatally. The symptoms observed during life were analogous to those of Asiatic Cholera, and in the fatal cases decomposition of the bodies rapidly set in. In six of the fatal cases a *post-mortem* examination was made. There were found peculiar extravasations of blood, as well as inflammation of the mucous membrane of the stomach and intestines, with tumefaction of the glands of the small intestines. In the patients who recovered, convalescence was slow, and attended with serious relapses. Inquiries instituted by the authorities clearly showed the origin of the outbreak; and the heartless culprits, whose miserable cupidity led to such sad results, were committed to prison, to await their trial. The owner of the diseased beast was eventually fined 18,000 marks (£900), and the two butchers who dressed and sold the carcase had each to pay 6000 marks.

NEW DISEASES.—Speaking of "the humbler Post-Office officials," and quoting from the Postmaster-General's Report for 1874, a writer in one of the magazines says: "The Postmaster, after expressing a hope that 'compulsory education' may bring about an improvement, gives us some specimens of written replies to customary questions received from candidates for the humbler appointments of the Post Office. They were required to answer concerning the diseases prevalent in their families. 1. 'Father had sunstroke, and I caught it of him.' 2. 'Sister died of compulsion.' 3. 'My little brother died of some funny name.' 4. 'A great white cat drawed my sister's breath, and she died of it.' 5. 'Aperplexity.' 6. 'I caught Tiber fever in the Hackney Road.' 7. 'Burralger in the head.' 8. 'Shortness of breath.' 9. 'Indigestion of the lungs.' 10. 'Sister was consumpted, but now she's

quite well again.' We fancy we have met with replies quite as comical among those who have had to do with animals.

KILLING ANIMALS BY DYNAMITE.—According to *Berrow's Worcester Journal*, Mr. Thomas Johnson, of Dudley, has recently made experiments with dynamite for the purpose of killing cattle. A small quantity of the explosive, the size of a thimble, was placed on the foreheads of several bulls and horses, and exploded in the ordinary way, with a short piece of safety fuse and detonator. The results were highly satisfactory, as the cattle were instantly killed by the explosion, and only required bleeding. Last week experiments were made on a more scientific scale at Mr. Bruton's, Red Hill, Dudley. The charges were exploded by electricity instead of in the ordinary way, and by this means any number of animals (even a hundred or more) may be instantly killed by the same current of electricity. Two large horses and one donkey, which were unfit for work, were drawn up in line about half a yard apart under a shed, the donkey being in the centre. A small primer of dynamite, with an electric fuse attached, was then placed on each of their foreheads, and fastened in position by a piece of string under the jaw. The wires were then coupled up in circuit, and attached to the electric machine, which stood about five yards in front. The word "ready" having been given, Mr. Johnson simply turned the handle of the machine and discharged an electric current, which exploded the three charges simultaneously, the whole of the animals instantly falling dead without a struggle. The experiment astonished the by-standers, who were surprised by the suddenness of the shock and the efficient manner in which it was accomplished—it having taken scarcely two minutes to conduct the experiment.

Correspondence.

EDUCATION AND SCIENTIFIC ACQUIREMENTS.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the *Veterinary Journal* for September and October, are letters from Mr. Greaves and Mr. Dyer on the above subjects. Mr. Greaves' letter, and its quotation in Mr. Thomas Taylor's name, appears to have given rise to some misapprehension as to its meaning, and some have supposed that it was intended to decry education. When we remember that both Mr. Greaves and Mr. Taylor have been among the foremost workers for the late great improvements effected in our professional education, it will be seen that the above impression is quite erroneous.

Mr. Greaves rightly lays great stress on the necessity for a good practical education; but, as Mr. Dyer most forcibly and truly says, "If our leaders of thought should advocate anything but a combination of scientific and practical instruction, it would be suicidal."

The position of the professional man, wherever he may be located, depends in a great measure on his education. He may be very successful in his occupation, but if not possessed of general knowledge he will find that he has no subjects in common with those he can reasonably hope to associate with, and that therefore an estrangement soon succeeds any advances that may have been made.

It might almost appear a needless waste of time to insist upon the value of education; yet there are some who rail at it. We must remember, however, that mental suffering is what we have to endure more often than physical; therefore education, which disciplines and strengthens the mind, will enable

us to fight the battle of life with greatly increased chances of success. The father who does not give his children the best education possible in his circumstances, neglects his duty both to them and to the state, and they will bitterly remember his shortcomings when experience teaches them, as it surely will, what they have lost.

In saying what follows, I wish it to be understood that, when I use the term "education," it is not that a man must necessarily have been at a very good or expensive school, but that he is one who reads to improve his mind, and keep pace with the knowledge of the day, on subjects of general interest to those whom he meets.

A professional man, medical or veterinary, will keep no position because he is in a profession. He may have a certain social position accorded to him at first; but it is only conditionally that he is able to keep it. This he will have to do by his own acquirements and his skill in his avocation: in fact, he will soon discover that he is taken for what he is found to be worth. If a bad and unskilful practitioner, he will obtain no clients, or if he finds them will soon lose them; for people are usually very acute when their private interests are concerned, and they will go to those who can give them the best return for their money. In short, education will enable the successful practitioner to occupy the position which his success in his profession has prepared for him, and which, without education, he cannot occupy.

It has been said by a distinguished writer, that the educated man cannot help a feeling of superiority over the uneducated, no matter what the wealth or social position of the latter may be. This is only natural, because one possesses a great advantage which the other lacks; he finds it an advantage that unconsciously asserts itself, and which the uneducated are constantly showing that they recognise and appreciate.

Why those who lack education are so ready to acknowledge its advantages, may strike some people as strange; but it is common sense that enables them to do so, because they cannot avoid seeing the privileges it confers, and that without it much of what is pleasurable in life is lost.

Of two children who are taken, if one be educated and the other not so, the one whose mind has been trained, disciplined, and expanded—in short, who has been taught to think—obviously chooses and enters upon his vocation with enormous advantages. Of course, if a young man should become a veterinary surgeon, and yet be unskilful in his profession, he will fail; but so would a joiner or one engaged in any business who did not know it well. That is a matter requiring no demonstration.

The time for railing at education has passed away. At best it was only affectation, and was an endeavour to make light of what was not possessed. In fact, it was, and is, wherever shown, an exemplification of the old fable of the fox and grapes.

It is not questioned that some educated men have failed as veterinary surgeons, through not knowing their profession; but most of them were men who had tried and failed at other avocations before they took to veterinary medicine as a last, and what they erroneously thought was an easy resource.

During a service of twenty years in the army, I have met numerous veterinary surgeons in all parts of the United Kingdom and abroad. I need scarcely say, that the successful ones were clever and energetic men who would have come to the front in any walk of life. With most of them I have had many conversations; and without one exception I have found them advocates of good education. The late Mr. John Lawson, of Manchester, a President of the Royal College of Veterinary Surgeons, than whom no one was more successful and respected, was one of the greatest upholders of the necessity for good education to the veterinary

surgeon ; and a long friendship with him enables me to state, that he to the last diligently studied his profession and other useful subjects.

Much has been said about classical education. It is obviously of enormous benefit to any student or veterinary surgeon. The time must come when some classical education will be deemed indispensable. A knowledge of Latin and Greek, though it be little, will greatly smooth the professional path ; it is easily acquired, and the time so spent will never be regretted. Some knowledge of French and German is also very advantageous.

My experience of veterinary surgeons differs from that of Mr. Greaves. Meeting many of them in different parts of the country, I have no hesitation in expressing the opinion that the treatment pursued by them is very much more rational, is based on much more practical knowledge, and is undoubtedly far more successful, than obtained some years ago. Of course, each twenty years passing over a profession will find the practitioners generally much improved. It cannot be otherwise, for it is not to be supposed that many earnest and thoughtful minds produce nothing during such a long period of time. Again, the instruction given at the colleges, and the examination tests, are much more practical, besides happily being much more scientific, than they were not many years ago.

What has kept our science in an unsatisfactory position, has been neglect of education. Owing to this, our literature was until the last few years scanty, and unworthy of us ; and the profession was unable to assert itself, and to place its utility and great power, when developed, of doing good before the world. A happy change has now taken place, numerous good standard professional works have recently appeared, and the time has gone by when veterinary surgeons would quietly suffer themselves to be made a target for ignorant and malicious slander.

Knowledge is power. Good education confers never-ending enjoyment on him who possesses it, because it enables him to associate in books with the great minds who have gone before. It unquestionably confers mighty advantages on the veterinary surgeon. Its importance cannot be overrated, and it is everywhere acknowledged. Acting under the influence of public opinion, parliament has made the education of the children of all classes compulsory. Education trains and invigorates the mind, and makes it far more capable of receiving instruction, and of rationally applying its acquisitions and experience.

If, then, I may presume to say a word to those who are now on the threshold of their studies, it would be—Diligently work at your profession. Be sure to learn the practical part, and also perfect yourselves in every way in the manual performance of all operations. If you neglect this, you will bitterly regret it. While thus obtaining what may be called the skeleton of the profession, you can at the same time be preparing to cover it in all its various parts by your reading, your experience, and the instruction which you will gain, not only at College, but even to the last day of your life. To acquire general education is easy, and a very little time taken daily from idle hours will soon make its acquisition an almost indispensable pleasure.

It is a matter requiring no demonstration, that those entrusted with the care of youth preparatory to joining a profession, should give the best education in their power.

In conclusion, then, the scientific and the practical education should go hand in hand ; it is necessary that both should be the best obtainable, and to attempt to divorce them would only be shortsighted folly.

Your obedient servant,

JAMES LAMBERT, F.R.C.V.S.,

Leeds Barracks, 13*th October*, 1877. 17th Lancers.

NITRITE OF AMYL.

To the Editor of the VETERINARY JOURNAL.

SIR,—Would you kindly allow me space to reply to Mr. Alexander Lawson's letter, which appeared in the *Journal* of this month? I trust he does not consider that my notes on Nitrite of Amyl were written for the purpose of ridiculing his clinical remarks. On the contrary, I fully appreciated Mr. Lawson's courage in trying a "new remedy"; and knowing Mr. Lawson personally, I am sure he has his profession too much at heart to publish anything that he could not substantiate. When I mentioned that the remedy was not "new," I meant in human practice. Being greatly interested in anything relating to physiology and therapeutics, I am pleased to know that Mr. Lawson intends giving Nitrite of Amyl another trial, and hope he will publish his notes regarding it. I was speaking to my friend Mr. Tom Taylor, F.R.C.V.S., Manchester, about Nitrite of Amyl, and he said he had failed to do any good with it. Mr. W. G. Taylor, M.R.C.V.S., Nottingham, has also told me that he gave it a trial in large doses in Tetanus, and found it of no use.

Yours faithfully,

London, *Oct. 4th*, 1877. J. DOWLING ALLMAN, A.P.S.

COPULATION AFTER EMASCULATION.

To the Editor of the VETERINARY JOURNAL.

SIR,—I should very much like to know if the following is a rare occurrence. Last month I castrated a bulldog, three years old; and, to my surprise, seven days afterwards I saw him serve a bitch, to all appearance as well as if he had not been operated upon. I have not observed him take any notice of a bitch since.

I am, yours truly,

"EDINA."

[Such an occurrence as that mentioned by our correspondent is not very common, though it is sometimes observed in the case of adult animals which have been recently emasculated—never with animals which have not attained the age of puberty before the operation is performed. We have, in our own experience, known an aged Arab horse cover a mare in heat two days after he was castrated. There is no instance on record, we believe, of coition being attempted more than once by such an animal, though impregnation may follow this attempt. The interval which elapsed between the operation and coition in the case recorded by our correspondent is certainly long; but as the attempt was undoubtedly due to the presence of spermatozoids in the remaining portion of the spermatic duct or *vas deferens*—there are no *vesiculæ seminales* in the carnivora—which stimulated the venereal desire and led to the accomplishment of the act, we cannot doubt that these fecundating particles had retained their vitality during that time. Colin mentions that he has found living spermatozoids in the pelvic convolutions of the deferent canals of a horse, eight days after castration. It would be interesting to know whether fecundation followed the attempt, though it would also be necessary to ascertain whether other dogs could have had access to the bitch, if she proved to be pregnant.]

AMERICAN "BOGUS" DIPLOMAS.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I am glad to inform you that I have succeeded in breaking up for ever a "Bogus Veterinary Diploma Mill," which had been running in this city for some years.

About a year ago, from information I received from people who had been written to, I felt sure that a person with some little knowledge of horses could get a diploma from a "firm" here (who were manufacturing them to order for cash), if they would not ask too many questions. So I made up my mind to catch the guilty parties, and expose them; as I knew that would be the best way to spoil their "bogus business," and show the public what little value ought to be attached to diplomas from strange and unknown "Institutions" called Colleges.

I wrote several letters to a man named Robert McClure (but of course called "Dr."), and had them posted in different States, asking him the amount of money I must send for a diploma. His answers were quite satisfactory, and his price for one ranged from $135 down to $100 if properly signed and sealed. At last I closed two bargains with him for two diplomas, one for $120, the other for $100, to be paid for on delivery at his office here. Then I asked the police authorities to assist me by taking the man into custody as soon as he received the marked money, and had handed the stranger (to him) the diploma. They willingly agreed to this, as it is against the law of this State to sell "bogus" diplomas. I got a young man to take $120 of marked money, and to obtain the diploma from the "Dr." It was all ready, as arranged by letter; the money and diploma changed hands; and, as the young man was leaving with the latter, a detective arrested Robert McClure and relieved him of the $120. He found several other diplomas all ready signed and sealed, with the names of those for whom they were intended filled in. He was at once taken before a magistrate, who committed him for trial. He employed the best counsel in this city to defend him; and after he had succeeded in getting the trial postponed four times, he was tried and convicted about a week ago of forgery, as two of the names attached to the diplomas were forged. The Judge sentenced him to pay a fine of $200 and the cost of the prosecution; also to confinement in the county prison for nine months. McClure tried to take poison, but was prevented from ending his life in that way. His counsel then got a writ of error from one of the Judges of the Supreme Court, on the ground that no person was defrauded by such forgery. So you see I cannot tell you how it will end; but I am satisfied that man will try some other business in the future. If you would like a copy of one of the "bogus" diplomas, I can get you one from the police, as they have several of them locked up at the station-house. Yours most respectfully,

J. W. GADSDEN, M.R.C.V.S.

134, N. Tenth Street, Philadelphia, U.S., America, *Oct. 5th*, 1877.

[By all means send a copy of the fraudulent document to the Royal College of Veterinary Surgeons, Red Lion Square, London. It may not only prove curious, but also of service, at some time or another, in the detection of impostors.]

RETRACTION OF THE TESTICLES WITHIN THE ABDOMEN.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—A short time ago I poisoned a dog which had Paralysis of the right hind-leg, and fistulous anus. My attention had been drawn to the fact that prior to these ailments the testicles were plainly visible within the scrotum, but that subsequently they had disappeared.

On making a *post-mortem* examination, I found them in the abdominal cavity, well developed, and only loosely attached by the spermatic cord. The dog had received a severe beating with a broom-handle during copulation,

which is the supposed cause of the mischief; and I presume either it or the irritation of the fistula caused the testicles to be drawn up thus. As I have never previously seen or heard of such an effect, I should be most pleased to have the benefit of your experience on the subject,

And remain, yours truly,

Manchester, *October 15th.* JNO. B. WOLSTENHOLME.

[We are not aware of any similar instance to that recorded by our correspondent, and can scarcely believe the retraction of the testicles into the abdomen possible in the adult animal, unless the abdominal rings were abnormally wide, and the action of the cremaster very energetic.]

CORRIGENDA.

IN the prefatory remarks to the paper entitled "Neology in the Veterinary Art," which appeared in our last impression, it was mentioned that, among other publications in which the article was re-published, the *Sporting Gazette* was one. This was an error, as that periodical did not reprint the effusion, or make any allusion to it. The *Sporting Gazette* was mentioned instead of the *Sporting Times*. It may be noted that *Bell's Life* also gave insertion to the defamatory and untruthful article from *Baily's Magazine*.

TO CORRESPONDENTS.

"EDINA."—Members of the veterinary profession who advertise themselves as commission agents for the sale of horses can have but a poor opinion of themselves or their calling. Such conduct does us great injury, and is very reprehensible.

Communications, Letters, Books, etc., Received.

COMMUNICATIONS have been received from Professor T. W. Mayer, Cirencester; C. Marking, Topplesfield; J. D. Allman, London; Professor Walley, Edinburgh; T. H. Simcox, Drogheda; J. Lambert, 17th Lancers, Leeds; B. C. R. Gardiner, Staff Veterinary Surgeon, Woolwich; "Edina;" J. B. Wolstenholme, Manchester.

BOOKS: *R. Moreton*, On Horse Breaking; *G. Nevile*, Horses and Riding; *Müller* and *Poloff*, Mittheilungen aus der Thierärztlichen Praxis im Preussischen Staate; Erster Jahersbericht der Königl. technischen Deputation für das Veterinairwesen über die Verbreitung Ansteckender Thierkrankheiten in Preussen; *Peuch* and *Toussaint*, Précis de Chirurgie Vétérinaire (vol. ii.); Report upon Contagious Pleuro-pneumonia occurring in Cattle; *F. J. Gant*, A Guide to the Examinations at the Royal College of Surgeons of England; *R. Brown*, The Races of Mankind.

JOURNALS: *American Veterinary Review; Archiv. fur Wissenschaftliche und Practische Thierheilkunde; Annales de Méd. Vétérinaire de Bruxelles; Journal of the Anthropological Institute; Medical Press and Circular; Archives Vétérinaires; Revue Vétérinaire; Wochenschrift fur Thierheilkunde; Journal of the National Agricultural Society of Victoria; Der Thierarzt; Recueil de Méd. Véterinaire; Archivio di Medicina Veterinaria* (two parts); *Deutsche Zeitschrift für Thiermedicin und Vergleichende Pathologie; Il Medico Veterinario; Giornale di Medicina Veterinaria; Animal World; Lancet; Edinburgh Medical Journal; Practitioner; American Live Stock Journal.*

NEWSPAPERS: *Homeward Mail; Field; North British Agriculturist; Farmer; Mark Lane Express; Agricultural Gazette; Sportsman; West London Observer; Philadelphia Public Ledger* (two copies); *Leeds Mercury.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.